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ABSTRACT

The vocational-technical staff at State Fair Community College conducted a curriculum research project in which twenty-one previously developed modules were revised and updated and seventy-two new modules of individualized mediated instructional materials were developed in the occupational areas of (1) agribusiness, (2) business and office occupations, (3) health occupations, and (4) trade and industrial welding. These modules were not only applicable to postsecondary education, but were also adaptable to secondary youth and special needs programs for disadvantaged and handicapped individuals. Modules developed were identified and later reviewed by advisory committees and state department of education program officers. Instructors developed a student packet, instructor's guide, and script for the modules. Slide/tape presentations or videotapes for the modules were developed by media specialists. A two-day inservice curriculum workshop was held to improve instructors' curriculum development competencies. A media production and distribution center established at State Fair Community College in 1975 was reorganized and expanded. Displays of modules available were set up at state vocational association meetings and brochures were mailed to instructors. From July 1, 1976, through December 30, 1977, approximately 537 modules were distributed to ninety educational institutions, including schools outside Missouri. (Author)

ED156910

Final Report

Project No. 498AH 60165
Grant No. G00760 3911

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A RESEARCH PROPOSAL TO DEVELOP AND MEDIATE 72 MODULES OF INDIVIDUALIZED INSTRUCTIONAL MATERIALS IN FOUR OCCUPATIONAL AREAS, AND TO DEVELOP THE CAPACITY TO REPRODUCE AND DISTRIBUTE MEDIATED INSTRUCTIONAL MATERIALS TO OTHER EDUCATIONAL INSTITUTIONS.

March 1978

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Office of Education

Bureau of Occupational and Adult Education

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ABSTRACT

The vocational-technical staff at State Fair Community College conducted a curriculum research project in which 21 previously developed modules were revised and updated and 72 new modules of individualized mediated instructional materials were developed in the occupational areas of (1) Agribusiness, (2) Business and Office Occupations, (3) Health Occupations, and (4) Trade and Industrial-Welding. These modules were not only applicable to post-secondary education, but were also adaptable to secondary youth and special needs programs for disadvantaged and handicapped individuals.

Modules developed were identified and later reviewed by advisory committees and state department of education program officers. Instructors developed a student packet, instructor's guide and script for the modules. Slide/tape presentations or videotapes for the modules were developed by media specialists. A two-day inservice curriculum workshop was held to improve instructors' curriculum development competencies.

A media production and distribution center established at State Fair Community College in 1975 was reorganized and expanded. Displays of modules available were set up at state vocational association meetings and brochures were mailed to instructors. From July 1, 1976 through December 30, 1977 approximately 537 modules were distributed to 90 educational institutions. This included schools from states other than Missouri.

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February 1978

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U.S. DEPARTMENT OF
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PREFACE

This project enabled State Fair Community College to continue and expand curriculum development and individualization of instruction started under previous projects supported by the Research Coordinating Unit and the Missouri Department of Elementary and Secondary Education.

The assistance provided by the Missouri Department of Elementary and Secondary Education, both monetarily and through technical assistance from state program officers, added greatly to the success of this project. The technical review and guidance provided by the advisory committee was of extreme benefit. Acknowledgment must also be given to those institutions field testing and utilizing instructional material developed under this project. Their input added to the quality of the final products.

INTRODUCTION

The need for curriculum development in individualized instruction was apparent from a review of the literature and past curriculum projects completed by State Fair Community College. The move to individualized instruction is recognized as one of the major educational thrusts of the 1970's. Its advantages are now apparent and emphasized by educational leaders and teacher training institutions. Dr. Paul Brandwein, noted educational researcher and author, estimated that one per cent of all school systems are now involved in individualized instruction at a significant level and many others were moving in that direction. Dr. Walter Hunter identified over 1000 practitioners of individualized instruction in a recent survey of Mid American junior and community colleges.

State Fair Community College became involved in individualized instruction in 1969 through a three year exemplary project in which the business and office curricula was individualized using a multimedia approach. Since then staff members have held workshops for and provided inservice assistance to over 100 Missouri and 60 Arkansas business and office educators to assist them in implementing individualized instructional systems in their own institutions.

These educators as well as teachers and administrators across the country have cited the following five problems associated with implementing individualized instructional programs in their institutions.

1. A lack of funds to:
   a. Purchase audiovisual equipment necessary to produce individualized instructional materials.
   b. Hire curricula writers and media specialists for the production of individualized instructional material.
2. A lack of knowledge by instructional personnel in the production of individualized instruction media.
3. A lack of time by instructors to revise their curricula materials for the individualized instruction approach.
4. An inaccessibility of individualized instruction materials. Materials have not been developed or are not applicable to their needs.
5. The absence of statewide or regional vehicles to reproduce and make available those materials produced by forerunners in individualized instruction.

In addressing these problems during this project, two goals were established.

Goal 1: To develop, mediate, modularize, and field test 18 individualized instructional modules in each of four occupational areas.

Goal 2: To continue and expand the media center so it has the capacity to mass reproduce individualized instructional materials with commercial quality, and to disseminate these materials as requested by educational institutions.

The procedures developed and outlined in later chapters can serve as a model for other states or institutions wishing to establish a coordinated approach toward the development of individualized mediated instructional materials.

METHODS AND PROCEDURES

Chapter II

Goal 1 - To develop, mediate, modularize, and field test 18 individualized instructional modules in each of the four occupational areas.

Selection of Modules

The occupational areas selected for the development of individualized instructional modules included (1) agribusiness; (2) business and office occupations; (3) health occupations; and (4) trade and industrial-welding. The selection of these areas was based on past departmental curriculum development, a departmental commitment to individualized instruction, and on the curricula developmental skills of department instructors.

Special curriculum advisory committees were selected for the welding and business and office occupations areas. Program advisory committees were used for agribusiness and health occupations. Advisory committees helped identify curricula needs, suggested a priority sequence for individualization and reviewed modules developed by the instructors. (See Appendix A for an advisory committee agenda and meeting minutes.) Committee members were selected for their expertise in the occupational area or in their educational curricula area. State department of education program officers also served on these committees.

A survey of business and office occupations instructors at the Missouri Vocational Association Annual Conference was also utilized to identify curricula needs in that area. (See Appendix B for survey instrument and results.) Utilizing instructor surveys and advisory committee recommendations, the modules for development during each institutional year were specified by conference between state program officers, State Fair Community College department chairpersons, and the project supervisor. A list of modules developed during this project is shown in Appendix C.

Development of Modules

The department chairperson, vocational dean, and project supervisor selected instructors to serve as curriculum developers in each area. Instructor selection was based on instructor expertise in that skill to be developed through the module, and in past curriculum development experience. Salary for these curriculum developers was provided through a grant from the Missouri Department of Elementary and Secondary Education.

Two organizational procedures were established for instructor development of a module. The instructor could develop the module as an overload assignment, or the instructor was given release time from instructional duties for curriculum development. The time required to develop each module was estimated, and then this was

equated to a teaching credit hour load. Parttime instructors were also employed for curriculum development. The institutional policy established for curriculum developers salary is shown in Appendix D.

Instructional modules consisted of three parts. A sample module is provided in Appendix E.

1. The student packet contained:
   a. Introduction and Objectives
   b. Learning Procedure
   c. Subject Matter Information
   d. Learning Activities

2. The instructor's packet contained:
   a. Introduction and Objectives
   b. Listing of Materials Needed
   c. References
   d. Suggested Instructional Procedures and Activities
   e. Student Activity Key
   f. Pre/Post Tests with Key
   g. Script for Media Presentation

3. Modules were mediated as needed. Audio tapes, 35 mm slides with audio cassettes and videotapes were utilized. Instructors were assisted in developing the module script by a media specialist.

After a module was developed, it was reviewed by another instructor in that department, the department chairperson, and the project supervisor. It was then field tested in classrooms at State Fair Community College and reviewed by the curriculum advisory committee.

Field Testing of Modules

Modules in business and office occupations were also field tested in six other Missouri Educational Institutions. The State Fair Community College business and office chairperson assisted these institutions in preparing for the use of these materials for individualized instruction by identifying classroom and laboratory requirements and equipment needed.

Instructors from those institutions then received two days of in-service instruction in the business and office laboratory at State Fair Community College.

The department chairperson through followup visits to those institutions, also provided on-site technical assistance.

A project funded through the Research Coordinating Unit of the Missouri Department of Education utilizing evaluation experts from the Center for Vocational Education at Columbus, Ohio, also evaluated the effectiveness of selected modules.[1]

A survey of institutions utilizing welding modules was conducted in October of 1977. The survey instrument is shown in Appendix F. This survey found no need for revisions of those modules.

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[1]Frank Pennell, "Development and Application of an Evaluation Model for use with Individualized Instruction, Final Report, Research Coordinating Unit-Missouri Department of Elementary and Secondary Education, 1977.

Instructor Inservice Workshop

A curriculum development workshop was sponsored by the Media Center projects on January 4, 5, and 6, 1977. A total of 40 instructors and support staff participated in the workshop. The workshop is explained in more detail in Appendix G.

A workshop planning survey was distributed to all instructional staff. The staff was then divided into three groups based on their knowledge of competency based and individualized instruction. Group A had limited knowledge, Group B were familiar with these concepts, Group C were teaching using competency based individualized instruction or had developed individualized instructional materials.

The workshop agenda provided four sessions of three hours each. Instructors rotated between the sessions enabling each individual to participate in all sessions. Sessions were held on: 1) Developing Objectives, 2) Student Evaluation, 3) Identification of Instructional Content, and 4) Using Media in Instruction.

Resource persons from the Center for Vocational Education at Ohio State University conducted the sessions on evaluation and objectives. A consultant from the University of Missouri conducted the session on content. The media staff at State Fair Community College conducted the session on using media in instruction.

Goals of the workshop were to provide technical expertise in curriculum development and to foster an attitude of motivation and innovation on the part of instructional staff. The workshop provided a vehicle to provide these two types of services to a large group at one time.

Goal 2 - To continue and expand the media center so it has the capacity to mass reproduce individualized instructional materials with commercial quality, and to disseminate these materials as requested by educational institutions.

Expansion of Facilities and Equipment

The media center was moved into the recently constructed Yeater Learning Resource Center in December, 1976. These new facilities provided: 1) an audio recording and mixing studio, 2) a TV-video studio, 3) photographic lab and darkroom, 4) equipment maintenance and repair lab, 5) staff and production planning offices, 6) graphic arts area, 7) module storage and packaging area, and a slide and cassette tape duplication area. See Appendix H for floor plan of the media production area.

An electronics instructor was employed fulltime during summer months and on a parttime basis during the instructional term to install, repair, and maintain media equipment. He also served as systems engineer during filming sessions in the video studio.

Slides were duplicated on a commercial camera copy stand. During the first six months of the project, slide film processing was done at State Fair Community College. Because of processor breakdown, we send long roll slide duplication film to a commercial lab for processing.

After processing, the film was cut and mounted at State Fair Community College. The volume of materials duplicated required the purchase of a Pako Automatic Slide Mounter. After mounting, the slides were collated, placed in carousel trays, and placed in inventory for later distribution.

A high speed cassette duplicator enabled the media assistant to duplicate 10 copies of each cassette module at a time. Cassette and case labels were then typed and the cassette added to the slide presentations in the module inventory.

Media Development for the Individualized Instruction Modules

The curriculum developer produced the first draft of each script in storyboard form which was then reviewed by the department chairperson or another instructor in the department. The script was then delivered to the media coordinator who assigned it to a media specialist for production. After an initial review, the media specialist met with the curriculum developer to edit the script.

During this editing session, the media specialist and curriculum developer determined: 1) script changes; 2) graphics or artwork needed; 3) live shots needed and their location (studio, classroom, or laboratory; 4) models or props needed; and 5) developed a time schedule for producing these materials.

Original color slides were then taken in the field, in the studio, in the laboratory or of graphics, and assembled into a master copy. Kodalith slides were developed by the media aide of those slides presenting written messages. The script was recorded onto 1/4 inch audio tape using a multi-source format. After a music introduction and closing was added, a master cassette tape was produced. Audible and inaudible advance tones were added to this master.

Three videotapes were developed in health occupations. The handwashing videotape was filmed in the health occupations laboratory, and a hospital bed was moved into the video studio for the production of the two videotapes on bedmaking procedures.

A script for the video presentations was written by the curriculum developer and reviewed and edited by the department chairperson and the assigned media specialist. Props and supplies were assembled. Following one or more practice sessions, the demonstration was video taped twice. These tapes were edited into one 3/4 inch master presentation to be used for duplication purposes.

After the master copy of each media presentation was completed, a review session was held in which presentations were critiqued for quality and content. The media specialist, curriculum developer, media coordinator, department chairperson, learning resource center director, and media center director participated in this review.

Dissemination of Materials

An introductory module giving the advantages of individualized instruction and describing the use of the modules in an individualized instructional setting was developed for each of the four occupational areas. This module along with other modules developed were described in a brochure developed by the project coordinator. One brochure was developed for each occupational area. Sample brochures are provided in Appendix I.

These brochures were mailed to instructors in Missouri in June of 1977. They were also distributed by State Department of Education program officers at district and area meetings.

A display of materials was set up at the Annual Missouri Vocational Association Conference. Instructors in welding and business and office presented workshop sessions at this conference showing and describing these materials. Copies of the business and office brochure were provided to professors in the business and office teacher education departments at the state universities to be distributed to student teachers.

Project staff met with state department of vocational education staff in Kansas and Nebraska and obtained permission to distribute brochures to instructors in that state. These brochures were mailed in August of 1977. A display of materials in agribusiness was set up at the Kansas Vocational Agriculture Teacher's annual conference in July of 1977.

Upon request from the business and office state program officer, project staff visited seven community colleges and area vocational/technical schools' departments of business and office occupations. A list of software and hardware needed by these departments to individualize their programs were developed and submitted to the state department. Following state approval, the modules were duplicated and distributed to these schools for use in their programs.

Orders were recorded as they were received. Materials were then checked and packed and shipped. A copy of the invoice was sent to the business office for billing purposes.

RESULTS

Chapter III

The primary purposes of this project were to develop individualized instructional modules and to duplicate and disseminate these to other educational institutions.

During initial stages of this project previously developed individualized instructional modules in business and office occupations were reviewed by the project advisory committee. Twenty one modules were identified as needing revision before being suitable for distribution. These twenty one modules, as listed in Appendix C, were revised during this project. Fifteen new modules were also developed in business and office occupations. Modules included a student packet, instructor's guide, and media as needed. Media types included slide/tapes and audio tapes.

Twenty modules were developed in agribusiness, fourteen modules in welding, and twenty three modules in health occupations. Accompanying media included 3/4 inch videotapes, 35 mm slides with cassette tapes, and audio tapes. During this project a total of 72 new modules were developed and 21 previously developed modules were revised.

A format was established for 1) student manuals; 2) instructor's guides; and 3) slide scripts. A sample module using this format is shown in Appendix E. A procedure was established for providing release time or overload pay for instructors involved in curriculum development.

Forty instructors and support staff were involved in a curriculum development workshop held on January 4, 5, and 6, 1977. Participants were involved in sessions on objectives, media, instructional content, and evaluation.

Slide sets and audio cassettes were duplicated and an inventory of these materials was established. Equipment and procedures used in the media center enabled staff to: 1) duplicate 11 copies of cassette tapes simultaneously; 2) copy approximately 800 slides per 100 foot roll of slide duplication film and shoot 3 to 5 rolls per day at maximum production; 3) mount and collate slides at approximately 2000 slides per day; 4) produce offset copies of student manuals and instructor's guides; 5) develop graphics; and 6) develop kodalith slides. During this project 537 individual modules were distributed to other educational institutions. Distribution was begun in business and office occupations and in health occupations in December 1976, and in agribusiness and welding in June, 1977. Modules were distributed to 94 institutions during this project. A summary of the distribution of these materials is included in this chapter.

A brochure describing modules available for dissemination was developed in each occupational area. These brochures were mailed to instructors in Missouri, Kansas, and Nebraska. Displays of these materials were set up at vocational association meetings in Missouri and Kansas.

CONCLUSIONS

Chapter IV

A successful procedure for developing, mediating, and disseminating individualized instructional materials was established during this project. It was found that to produce quality materials and for these materials to be useful to instructors in other institutions, the combined efforts of the media and instructional staff, state program officers, program advisory committees, and field test institutions were required.

Advisory committees were found to be of extreme importance in the identification of modules for individualization, and in the review of these modules that were developed. The broad experiences of committee members insured that essential information was included and that the information included was current. Both procedures followed for utilizing advisory committees were found to have merits. The special advisory committees established in business and office and welding for the purpose of identifying and reviewing modules developed under this project were able to spend more time and place more emphasis on these materials than were the general program advisory committee in the other areas. However, the cost for these additional advisory committees was considerably increased.

The development of the number of modules specified in the project required the close cooperation of the media center director, media staff, instructional staff, department chairperson, and vocational dean. It was found that a yearly schedule for the development of materials in each department was needed to insure an even flow of work for the media staff and the secretarial staff to allow the instructional staff to develop materials without interrupting their other responsibilities. One media specialist was assigned the additional responsibilities of coordinating the activities of the media specialists in order to increase the efficiency of the department.

Instructors must be provided additional time for the development of individualized instructional materials, especially when these materials are to be duplicated and disseminated to other educational institutions. These materials must be of a higher quality and must be reviewed more closely when they are developed for use by other instructors. A definite procedure for reviewing and approving new modules was important.

The quality of the module produced was also found to be related to the amount of time the media specialist could spend editing and reviewing the script with the curriculum developer, and in the time spent in developing graphics, shooting and editing slides and videotapes, and in recording audio tapes. Time must also be provided for the media specialiat to make those revisions found during the field test and review procedures.

The development of modules required additional competencies from those required for instruction. Instructors just beginning to develop mediated modules required additional advice and assistance from department chairpersons, the media center director, and the media specialist. The establishment of a specified format for the modules was of great benefit to the new curriculum developer.

Field testing of the modules identified problems students and instructors encountered during thier use. By providing inservice training for those instructors field testing these materials, a more equal and valid testing of the modules was possible. More reliable data was obtained through on-site visits to the field test institutions by field testing staff.

The curriculum development workshop was of value not only to the instructors developing individualized materials, but also to the instructors teaching by competency based and/or individualized instructional methods. Time should be provided in the workshops for the instructors to practice those developmental skills explained by workshop leaders. Sessions on developing objectives and student evaluations were of the greatest interest to the instructional staff. Individual workshops in both areas were requested during the evaluation of the workshop.

Adequate media facilities were found to be essential for the development of presentations of a quality suitable for dissemination. A soundproof recording booth with capacity for audio mixing was important. A studio with controled lighting increased the quality of slides and videotapes. The employment of a parttime technician insured that equipment would be operational as needed by the media staff.

In-house duplication of materials provided for the immediate filling of orders and for the rapid duplication of materials as they were depleted from inventory. Student manuals and instructor's guides could be reproduced on the offset press within three days. Cassette tapes could be duplicated within two days. Approximately one week was required to duplicate slide sets. By in-house copying of slides, the number of copies could be based on inventory turnover without penalties for those low sales modules requiring limited copies. This reduced the amount of funds tied up in inventory.

A widespread program is required to publicize materials developed by an educational institution. This included the development and distribution of brochures describing the materials, operating exhibits and presenting sessions at area, district, and state vocational meetings, and the close cooperation with state program officers. As the media center becomes more widely known, orders should increase as many of the early orders were from institutions having direct contact with the media center.

These materials were found to be suitable for special needs students as evidenced by their use and orders from state correctional institutions, and through their suitability for students in the disadvantaged and handicapped program at State Fair Community College.

Staff needs required to conduct this or similar projects included:

1. media center director who was responsible for the coordination of all development, duplication, and dissemination activities and for securing curriculum developers and filling staff positions.

2. curriculum developers who are responsible for developing the student packet, instructor's guide, and media script. From

80 to 120 hours of work was required for the average module which was equivalent to a three hour course overload.

3. secretarial and clerical staff for handling correspondence, typing of student manuals, instructor's guides, and scripts, and recording and filling orders including quality check of materials sent out.

4. media aides who duplicated cassette tapes, operated the copy camera, horizontal camera, film cutter and slide mounter, developed kodaliths and numbered and collated slides.

5. technician who maintained and repaired media equipment.

6. media specialists who reviewed and edited scripts, developed original photography, developed graphics, assembled master slide sets, recorded, edited, mix audio tapes, and operated video equipment.

RECOMMENDATIONS

Chapter V

1. Advisory committees be utilized in the identification and review of instructional materials in vocational education, and that instructors be surveyed to identify their specific curricula needs.

2. Instructors with teaching experience and a knowledge of business and industry needs to be employed for the development of curriculum materials and that instructors responsible for curriculum development be given release time from instructional duties or be provided overload pay for the development of instructional materials.

3. A curriculum development schedule for each department be established at the beginning of each year to even out the work flow of the media staff, secretarial staff and instructional staff.

4. Adequate media staff with production experience in educational media be provided to assist the instructional staff in determining media needs and developing and reviewing scripts, and for the actual production of media presentations.

5. A handbook be developed to assist the instructor who is just beginning curriculum development responsibilities.

6. Review procedures must be established for individualized mediated instructional materials produced for distribution to include departmental review, institutional review, review by advisory committees, and field testing.

7. Curriculum developers also be utilized from other educational institutions. This will enable the coordinator to select that instructor with a special expertise in each module to be developed.

8. Emphasis in media development be placed on videotapes and 35 mm slides as these are the most inexpensive and easiest type to produce and the most usable to the educational institution with the equipment commonly available.

9. Field testing of all new modules be done in two or more educational institutions. Instructors involved in field testing should be given inservice training on their use.

10. Curriculum development workshops should be provided for all instructional staff. These workshops should provide time for the instructor to obtain actual practice in those competencies covered by workshop leaders.

11. Development of mediated individualized instructional materials be centralized in a limited number of institutions thus providing sufficient administrative instructional staff, media staff, media production facilities, and equipment to insure quality materials.

12. The development and dissemination of mediated individualized instructional materials be expanded to other vocational programs and occupational areas. A 1/2 to 3/4 time curriculum development position be maintained in each program area.

13. The dissemination of these materials be expanded to other states. Materials should be publicized through exhibits at vocational meetings and distribution of brochures.

14. Equipment used in the development and duplication of media presentations be updated as technological advances are made, and that duplication equipment be increased as volume of sales increases.

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GLOSSARY OF TERMS

1. Individualized Instruction-development of curricula and media which allows open-entry, open-exit, flexible scheduling to meet the needs of each individual.

2. Modularize-develop self-contained individualized instructional packages around competency-based objectives.

3. Competency-Based Instruction-development of curricula, based upon consultation and advice from representatives of business, industry, and education which includes attitudes, knowledge, and skills that an individual needs to master.

4. Media Center-a center for the development, reproduction, and dissemination of mediated individualized instructional materials in vocational education.

5. Mediation (Mediated)-audio and/or visual methods of presenting instructional materials. Examples are slides, slide/tapes, filmloops, and videocassettes.

6. Evaluation-a method of determining if materials are effective or meet their stated objectives, and producing data as to needed changes.

Appendix A

Media Center

Curricular Advisory Committee

a. Advisory Committee Meeting Agenda

b. Minutes of Advisory Committee Meeting

c. Members of Advisory Committee

A G E N D A

WELDING ADVISORY COMMITTEE MEETING
State Fair Community College
Sedalia, Missouri

November 15, 1977
Gold Buffet, North Kansas City

6:00 p.m.	WELCOME AND INTRODUCTION	Nila Hibdon, Dean Vocational-Technical Education, SFCC
	DINNER	
7:00 p.m.	ADVISORY COMMITTEE MEETING	
	GENERAL OVERVIEW OF WHAT HAS BEEN ACCOMPLISHED	Gerald Evans Welding Curriculum Developer
	COMMENTS FROM THE STATE DEPARTMENT	Larry Lutz, Department of Elementary and Secondary Education
	REPRODUCTION AND DISTRIBUTION OF MATERIALS	Robert Schwindt Media Center Director, SFCC
	REVIEW AND DISCUSSION OF INDIVIDUALIZED MODULES Subgroup A-Modules 101, 102, 103 Subgroup B-Modules 104, 105, 106 Subgroup C-Modules 107, 108, 109 Subgroup D-Modules 110, 111, 1000	
9:00 p.m.	SUBGROUP REPORTS	Committee Recorders
	RECOMMENDATIONS FOR FUTURE DEVELOPMENT	Gerald Evans
9:30 p.m.	ADJOURNMENT	

SUBGROUPS

Subgroup A	Modules 101, 102, 103
Alan Young	Purweld Industrial Products
Tom Joslin	Midwest Conveyor
Al Wood	Kansas City Technical Center
Jarold Welch	State Fair Community College
Larry Breedlove	Harrisonville Area Vo-Tech School
Ron Elliott	State Fair Community College

Subgroup B	Modules 104, 105, 106
John Pool	Dart Truck Company
Les Holland	Allis Chalmers Corp.
Rex Lasiter	Fashions, Inc.
Robert Schwindt	State Fair Community College
Henry Ludwig	Crowder College
Larry Lutz	Dept. of Elementary and Secondary Education
Jean Brelsford	Kansas City Technical Center

Subgroup C	Modules 107, 108, 109
Jim Watson	RMF Steel
Rick Houser	Westwood Ornamental Iron
Jerry Biggs	Trailmobile
Nila Hibdon	State Fair Community College
Robert Seiler	Lex La-Ray Area Vocational School
Ron Bellamy	State Fair Community College

Subgroup D	Modules 110, 111, 1000
Kenny James	EK Campbell
Ray Peterson	Parkhurst Manufacturing Company
Dave Hinkley	Havens Steel Company
Loyd Crawford	Kansas City Structural Steel Company
Gerald Evans	State Fair Community College
Marvin Bedsaul	Warrensburg Area Vo-Tech School
Bill McEwan	State Fair Community College Placement

MODULES SUGGESTED FOR FUTURE DEVELOPMENT
November 15, 1977

DIRECTIONS:

1. Review list
2. Add modules you feel are needed
3. Number in your order of preference with one (1) as most important

- -

_____ Horizontal Position Shielded Metal Arc Welding

_____ Vertical Position Shielded Metal Arc Welding

_____ Overhead Position Shielded Metal Arc Welding

_____ Orthographic Projection and Visualization

_____ Understanding AWS Welding Symbols and Prints

_____ Blueprint Printing and Basic Layout Procedures

_____ Basic Pipe Welding

_____ Welding Heavy Pipe

_____ Fitting Pipe

_____ Understanding, Setting and Operating the Gas Micro-Wire Unit

_____ Welding Basic Joints in the Flat Position with the MIG Welding Unit

_____ Welding Basic out of Position Joints with the MIG Welding Unit

_____ Setting and Operating the Gas Tungsten-Arc Welding Unit

_____ Welding Aluminum with the Gas Tungsten-Arc Welding Unit

_____ Welding Stainless Steel with the Gas Tungsten-Arc Welding Unit

_____ Operating the Fuel Gas Welding Unit

_____ Flame Cutting Equipment

_____ Welding and Brazing with the Fuel Gas Unit

_____ Metallurgy for Welding - Part I (Ferrous Metals)

_____ Metallurgy for Welding - Part II (Non-Ferrous Metals and Alloys)

_____ Understanding Tests and Inspection Methods

_____ Destructive and Non-Destructive Testing of Welding Joints

AGENDA

Media Center Advisory Committee Meeting
Business and Office Component
October 14 and 15, 1976
State Fair Community College

Thursday, October 14, Board Room

	COFFEE AVAILABLE	
10:30 a.m.	WELCOME	Dr. Marvin Fielding Mrs. Nila Hibdon
	UPDATE ON MEDIA CENTER	Mr. Dan Blackledge
	PERSPECTIVE	Mr. Charles Newman
	DEVELOPMENT SCHEDULE	Mrs. Shirley Evans
11:45 a.m.	LUNCH - AROUND THE FIRESIDE	
1:15 p.m.	SELECTION OF MODULES TO EVALUATE	Committee Members
	EVALUATION OF MODULES	Committee Members
4:00 p.m.	ADJOURN	
6:30 p.m.	DINNER - OLD MISSOURI HOMESTEAD	

Friday, October 15, Board Room

	COFFEE AND DONUTS AVAILABLE	
8:30 a.m.	RECOMMENDATIONS ON MATERIALS EVALUATED	Committee Members
	PRIORITIES FOR FUTURE DEVELOPMENT	Mrs. Shirley Evans
	REVIEW OF PRE- AND POST-TESTS	Mr. Frank Pennell Committee Members
12:00 noon	ADJOURN	

RECOMMENDATION FOR FUTURE CURRICULUM DEVELOPMENT

Survey Taken at MVA, 1976

Number of Responses	TITLE OF MODULE
77	BUSINESS COMMUNICATIONS OR WRITING
69	WORD PROCESSING
68	TELEPHONE TECHNIQUES
50	MAIL HANDLING
38	LEGAL OFFICE PROCEDURES
37	DATA PROCESSING
36	RECORDS MANAGEMENT
33	RECORDKEEPING
33	MEDICAL OFFICE PROCEDURES
33	ART OF DICTATION
19	MACHINE SHORTHAND (TOUCH SHORTHAND)
17	LEGAL TRANSCRIPTION
17	LEGAL TERMINOLOGY
13	MEDICAL TERMINOLOGY
12	MEDICAL TRANSCRIPTION
11	CENTURY 21 SHORTHAND
10	STENOSCRIPT ABC SHORTHAND
2	BURROUGHS BOOKKEEPING MACHINE
2	ORAL COMMUNICATIONS
2	FORKNER SHORTHAND
2	SELF ASSESSMENT AND CAREER EDUCATION
2	PERSONALITY DEVELOPMENT
1	DRESS FOR THE OFFICE
	MAG CARD I AND II
	COMPOSER
	BUSINESS ENGLISH
	PROCEDURES FOR USING LESSON PLANS AND EQUIPMENT
	BASIC BUSINESS

BUSINESS AND OFFICE COMPONENT OF MEDIA CENTER ADVISORY COMMITTEE

Dr. Elwyn Devore	Northwest Missouri State University
Dr. Robert Sprehe	Northeast Missouri State University
Mrs. Mary Fuller	Forest Park Community College
Dr. Gene Loftis	Southeast Missouri State University
Dr. Mary Gaw	Lincoln University
Dr. Olin Frazier	Central Missouri State University
Mrs. Madean Dubus	Mexico No. 59 School District
Mrs. Carolyn Smith	Trenton Junior College
Dr. Mary Jane Lang	University of Missouri
Mrs. Neva Maddox	Southwest Missouri State University
Ms. Linda Harris	New Madrid Area Vocational-Technical Skills Center
Mrs. Rudell Crites	Three Rivers Community College
Mrs. Betty Barrows	Chillicothe Area Vocational-Technical School
Mr. Charles Newman	Department of Elementary and Secondary Education

Appendix B

Curriculum Survey

1976 MVA Convention

PRIORITY LIST FOR MEDIA CENTER DEVELOPMENT
in 1977-78

Established from Two Surveys
of Missouri Business Educators
in July, 1976 and November, 1976

MODULES LISTED BY PRIORITY FOR DEVELOPMENT . . . .

ORAL COMMUNICATIONS--Listening
ORAL COMMUNICATIONS--Speaking
WRITTEN COMMUNICATIONS (2 or 3 modules)
WORD PROCESSING PROCEDURES
PACKAGING ITEMS FOR SHIPPING
TELEPHONE TECHNIQUES
TRANSCRIPTION MACHINE OPERATION--IBM 6:5
TRANSCRIPTION MACHINE OPERATION--Sony Secutive
LEGAL OFFICE PROCEDURES
RECEPTIONIST'S TECHNIQUES
RECORDS MANAGEMENT (6 modules)
DATA PROCESSING (3 modules)
ART OF DICTATION
ELECTRONIC CALCULATOR OPERATION
ACCOUNTS RECEIVABLE
ACCOUNTS PAYABLE
LEGAL TRANSCRIPTION (5 modules)
CAREER OPPORTUNITIES
- Clerical
- Secretarial
- Legal Secretarial
- Medical Secretarial
- Word Processing
- Court Reporting

SUGGESTIONS MADE BY MR. NEWMAN, AUGUST, 1977

NEW EQUIPMENT FOR BUSINESS & OFFICE EDUCATION
OVERVIEW OF CHANGES IN BUSINESS FOR TEACHERS--mailing, calculating, correction procedures
HUMAN RELATIONS

PROPOSED PRIORITY LIST FOR MEDIA CENTER DEVELOPMENT
in 1978-79

WORD PROCESSING PART III & IV
PACKAGING ITEMS FOR SHIPPING-(Final Module in Mail Processing Unit)
RECORDS MANAGEMENT (2 modules) (Microforms)
REPROGRAPHICS-Copy preparation and use of services
DATA PROCESSING from the OFFICE EMPLOYEES' VIEWPOINT
THE SECRETARY AS AN ADMINISTRATIVE ASSISTANT
LEGAL TERMINOLOGY (Corporations and Partnerships)
ACCOUNTS RECEIVABLES
ACCOUNTS PAYABLES
PRIORITIES ADDED BY ADVISORY COMMITTEE
HUMAN RELATIONS
FIRST LINE SUPERVISORY
DICTATION SKILLS

Appendix C

Modules Developed

a. Agribusiness

b. Business and Office Occupations

c. Health Occupations

d. Trade and Industry-Welding

Modules in Agribusiness

1000 Orientation to Individualized Instruction
501 Land Resources and Food Supplies
502 Concepts of Soils
503 The Soil Profile
504 Composition of Soil
505 Soil Parent Material
506 Soil Formation
507 The Soil Separates and Texture
508 Soil Density and Structure
509 Physical Properites Related to Texture and Structure
510 Soil Color
514 Organic Matter and Soil Life Farming on the Contour
522 Forms of Water in the Soil
523 Water Movement and Penetration in Soil
524 Water Storage of Soils
525 Controlling Soil Erosion
526 Waterways
527 Farming on the Contour
529 Land Capability Classifications
530 Legal Land Descriptions and Soil Survey

Modules in Business and Office

Modules Revised and Updated for Distribution Through Media Center

1000	Student Orientation to Individualized Instruction
16	Erasing and Correcting Errors
27	Correction Products Other Than Erasers
541	Introduction to the Stencil Duplicator
542	Operating the Stencil Duplicator
580	Preparing Offset Masters
581	Preparing the Offset (A.B. Dick 324) for Operation
582	Operation of the Offset (A.B. Dick 324) Duplicator
605–609	Alphabetic Filing Rules (Gregg)
650–652	Alphabetic Filing Rules (South-Western)
700	Office Procedures Tips
720–724	The Metric System

Module Development in Business and Office

1150	Machine Shorthand II
901	Legal Terminology-Litigation
902	Legal Terminology-Probate
903	Legal Terminology-Real Estate
904	Legal Terminology-Corporations and Partnerships
801	Word Processing Concepts
802	Word Processing Concepts-Difference Between Word Processing and Traditional Systems
803	Word Processing Concepts-Why Businesses Use Word Processing
804	Word Processing Terminology
805	Terminology for Duplication Equipment
806	Dictation Equipment
808	Automated Typing Equipment
726	Mailing Procedures-Incoming Part B

Module Development in Health Occupations

1000 Introduction to Individualized Instruction
401 Your Total Image
402 Introduction to Transactional Analysis-Part I
403 Introduction to Transactional Analysis-Part II
404 Factors Influencing Behavior-Part I
405 Factors Influencing Behavior-Patterns of Adjustment
406 Learning How to Learn
407 The Health Care Team
408 Ethical and Legal Considerations
209 Oral Hygiene
210 Assisting the Patient with Oral Hygiene
495 DNA and Mitosis in Cellular Duplication
213 Body Mechanics for the Nurse-Part I Information
214 Body Mechanics for the Nurse-Part II Information
215 Body Mechanics for the Nurse-Demonstration
216 Body Mechanics for the Patient-Part I Information
217 Body Mechanics for the Patient-Part II Information
218 Skin Care
230 Principles of Bed Making
231A Bed Making Procedures-Unoccupied Bed
231B Bed Making Procedures-Surgical Bed
231C Bed Making Procedures-Orthopedic Bed
232 Bed Making Procedures-Occupied Bed
233 Safety Devices
234 Applying Common Safety Devices

Modules in Welding

1000 Introduction to Individualized Instruction
101 General Welding Shop Safety
102 Shielded Metal Arc Welding Safety
103 Fuel Gas Welding Safety
104 Shielded Metal Arc Welding Principles
105 Setting Up and Operating the Metal Arc Welding Machine
106 Basic Joints Used in Welding
107 Shielded Metal Arc Electrodes
108 Basic Weave Patterns and Padding
109 Square Groove Butt and Lap Joint Welding
110 Welding Heavy Plate
111 Single and Multiple Pass Fillet Welds
140 Introduction to Pipe Welding
150 Print Reading Orthographic Projection, Visualization, and Dimensioning of Weldment Drawings

Appendix D

Media Center Policy

For Payment For Module Development

MEDIA CENTER POLICY ON PAYMENT FOR MODULE DEVELOPMENT

The following policy establishes guidelines for paying persons who develop modules for the Media Center. To receive payment for a module, it must conform to Media Center guidelines. The development of a module is considered to be the equivalent of a three-hour teaching assignment and staff members will receive payment based on the existing salary schedule.

1. REGULAR FULL TIME STAFF MEMBER

   a. Full time staff members who are writing for the Media Center as a part of their teaching load will have a percent of their salary charged to the Media Center.

   b. Full time staff members with a full teaching load will be paid overload salary as per existing salary schedule.

2. PART TIME AND NON-STAFF MEMBERS

   a. Part time and non-staff members will be paid $450 per module on either a contract or professional salary basis.

3. REVISION OF EXISTING MODULES

   a. Revision of existing modules will be negotiated by the instructor involved and the project director with approval of the Dean and President.

Appendix E

Sample Modules

MEDIA CENTER
STATE FAIR COMMUNITY COLLEGE
1900 Clarendon Road
Sedalia, MO 65301

Welding

109 Square Groove Butt and Lap Joint Shielded Metal Arc Welding

Student _____

Date Started _____
Date Completed _____
Approved _____

INTRODUCTION

A properly welded joint will be as strong as the original metal. This requires the proper electrode, machine setting, and welding procedures. The square groove butt joint and the lap joint are the two basic joints that are the easiest for the beginning welding student to master.

In this lesson you will study the uses and construction of these two joints. In the welding lab you will practice running these beads until you can satisfactorily pass the welding post-test.

OBJECTIVES

At the completion of this module the student should be able to:

1. Identify the three types of butt welds and their characteristics.
2. Identify the three types of vee butt welds and their characteristics.
3. Recommend when each type of butt weld should be used.
4. Give the advantages of a lap weld.
5. Set up and run each type of butt weld.
6. Set up and run each type of vee butt weld.
7. Set up and run a lap bead.

PROCEDURES

1. Read the objectives and introduction to this module.
2. If you feel you can fulfill 90 percent of the objectives, ask your instructor for the pre-test.
3. If you do not take the pre-test or do not meet the minimum requirements on the pre-test, continue with the next procedure.
4. Study the information sheets which are a part of this learning packt. A Vocabulary List is provided at the end of the information sheets to help you learn the technical terms used in welding. Words you encounter in the reading which are not familiar to you may be listed on the Vocabulary List.
5. Observe and listen to Slide-Tape Presentation W77-109.
6. Complete the Activity Sheets which are a part of this learning packet.
7. Review the objectives to be certain you understand what you are expected to have learned. Performance of these objectives will be evaluated on the post-test.
8. Ask your instructor for the test over this module. You are required to achieve at least 90 percent accuracy on this test before proceeding to the next module.
9. When you pass the test with 90 percent accuracy, proceed to the next module.

INFORMATION SHEET

NOTES

The Butt Weld

Butt Welds are the most widely used weld, and the easiest for the beginning welding student to master. To make this weld two pieces of metal are placed side by side and then joined with one or a series of beads. Butt welds are used in the manufacture of farm machinery, automobiles, and many other items. A butt weld is very easily and quickly run on assembly line setup. Often parts are fabricated using butt welds in the flat position and then these parts later raised into vertical, horizontal, or overhead positions.

The butt weld is also used in the repair of farm or construction equipment when a crack or break occurs. With modification the butt weld is used to weld or repair round shafting.

Types of Butt Joints

There are three major types of butt joints.

A. Closed square butt joint

B. Open butt joint

C. Vee butt joint

There are also three forms of the vee butt joint.

A. The feather edge

B. The shoulder edge

C. The double vee

The Closed Square Butt Joint

The two pieces of metal are placed side to side with no gap between them in making the closed square butt joint. This joint is used primarily on thin metal or sheet metal which does not exceed 1/8 to 3/16 inch in thickness. By butting the pieces together there is less chance of burn-through on thin metal. It is hard to obtain deep penetration with this type of joint especially with thinner metal. If heavier metal is welded, the amperage must be increased and a larger electrode used. Sometimes a bead is ran on both sides of the joint to obtain complete penetration. If adequate penetration is not obtained, the resulting joint will be weak. You will test your beads for penetration by placing one plate in the vice and bending the other plate with a large hammer. A press can also be used. The metal should pull apart rather than the bead breaking if you have adequate penetration.

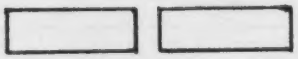
Closed Butt Joint

INFORMATION SHEET

NOTES

The Open Butt Joint

A space is left between the two pieces of metal with the open butt joint. This space will vary from 3/32 to 1/8 inch depending on the thickness of metal. The open butt joint is used for metal from 3/16 to 3/8 inch in thickness. For maximum strength, deep penetration is essential which may be a problem on thicker metal. For example, if a weld has only 25 percent penetration on each side of the weld, figure the joint is only 1/2 as strong as the base metal. Two procedures can be used to insure thorough penetration. A bead may be run on each side of the joint as shown in figure No. 1 or a back-up strip used as shown in figure 2 This allows you to use a high amperage setting without burning through. A backup strip may also be used in welding metals with a poor fit up.



Open Butt Joint

Figure 1

Vee Butt Joints

The edges of the joints are leveled to the approximate included angle of 60 degrees for vee butt joints. The most common method of veeing the metal is with a grinder but an oxycetylene cutting torch also be used.

Figure 2

The vee butt joint is used with thicker metal usually 1/4 inch or more, to insure complete penetration, or when it is not possible to weld the joint on both sides.

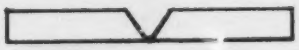


Figure 3

On thinner metal (1/8" or more) a feather edge (figure 3) is used while with thicker metal (1/4" or more) a shoulder edge (figure 4) is used. There is more danger of burn-through with the feather edge. Often a backup strip is used to prevent burn-through with the shoulder edge when a high amperage setting is used for deeper penetration.

Figure 4

A double vee is recommended when the metal is over 3/8 inch thick or when round stock is being welded. It is easier to secure complete penetration without edge undercutting when the doube-vee joint is used.

Double Vee Joint

Butt joints may also be used for joining metals of uneven thickness. However, the electrode will be directed slightly as shown in figure 5 toward the thicker piece.

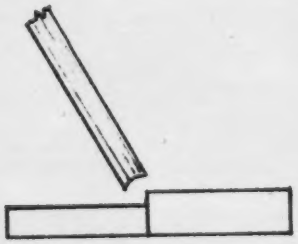


Figure 5

Lap Joints

Lap welds are used when a smooth even surface is not required and when the joint is subject to heavy bending stresses. It is also used to

INFORMATION SHEET

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stiffen or reinforce structural members. Lap welds often produce a stronger joint than a butt weld. The lap weld is considered a fillet weld because the bead is at an angle to the horizontal work surface. However, sometimes the pieces may be tilted (see figure 6) so that the bead is run in a flat position.

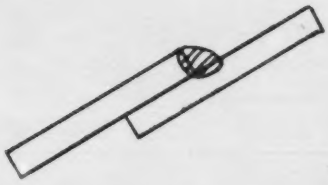


Figure 6

The width of the deposit on the bottom plate (see figure 7) should be approximately the same as the thickness of the upper plate. The bead surface should be slightly concave.

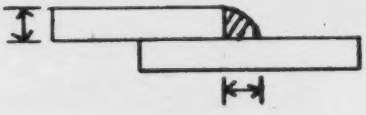


Figure 7

Two problems to watch for with the lap weld are undercutting and overlapping. Undercutting occurs when the upper edge of the top piece is melted off as shown in figure 8 . This may be caused by using two high of an amperage, or by using an incorrect electrode angle, that is by laying the electrode too flat.

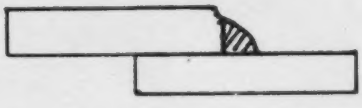


Figure 8-Undercut

Overlap (figure 9) occurs when there is too little penetration and a buildup of weld metal on the lower plate. this may be corrected by increasing the amperage or by pointing the electrode more directly at the lower plate. Practice is required to be able to recognize the correct electrode angle and amperage setting. Normally, the electrode will be pointed a little more toward the bottom plate since more heat is required to melt the bottom plate than the edge of the top plate.

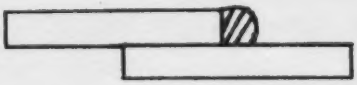


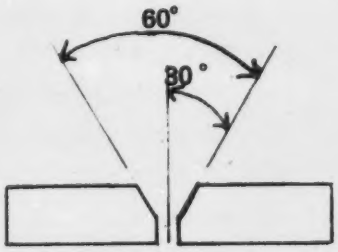
Figure 9-Overlap

The electrode angle will also have to be varied when metal or uneven thickness is being joined. The electrode will have ' be pointed more directly at the thicker piece thus directing more heat toward it.

Butt Welding Procedures

Step 1 Prepare your metal

If the metal is rusty, it will be necessary to remove the rust to insure a strong weld without pits or pockets. Use a wire brush. Small pieces may be cleaned with the brush on the pedestal grinder. Be sure the piece is securely held to prevent the wire brush from grabbing or throwing the metal.



Thicker metal should be veed out. Determine whether the double vee, the feather edge, or the shoulder edge is to be used. Grind a 30 degree angle on each piece using the pedestal or portable grinder. Be sure all shields are on the grinders and your safety goggles are in place.

Step 2 Select your electrode

For this lesson using 1/8 to 1/4 inch thickness of metal a 1/8 inch

INFORMATION SHEET

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electrode will be used. For the beginning welder, the E6013 electrode will be easier to use. However, the E6011 electrode will give deeper penetration. On 1/4 inch or thicker metal a 5/32 inch electrode may be used.

Step 3 Adjust your amperage setting

The amperage will depend upon the individual machine, the metal thickness, and the electrode to be used. A lower amperage setting will usually be required for the E6011 electrode than for the E6013 electrode. For 1/8 inch metal using a 1/8 inch electrode a trial setting of 100 amperage should be used. For 1/4 inch metal and 5/32 inch electrode a trial amperage of 130 should be used. If adequate penetration is not obtained and the bead piles up, increase the amperage 5 to 10 degrees.

Step 4 Position your metal

Use a 1/8 strip of metal as a backing strip. Space the pieces of metal approximately 3/32 inch apart. (This gap should be about 1/2 the thickness of the metal.) Fasten your ground clamp to the welding table or the metal being welded.

Step 5 Tack weld the joint

Run a short bead (1/4 - 3/8 inch) at each end of the joint. This will prevent heat distortion from causing the metal to spread apart as the bead is run. Chip the slag from the tack welds and clean with a wire brush.

Step 6 Strike an arc

Strike the arc using either a scratching or tapping motion. Hold a long arc momentarily to preheat the metal then lower the electrode to the proper arc length. Sometimes a scratch or starting strip is placed at the left end of the joint for striking the arc.

Step 7 Run the bead

Tip the electrode 15 to 25 degrees in the direction of travel while maintaining it perpendicular to the plate as shown in figure 10. Maintaining the proper arc length run the bead. The final bead width should be approximately 1 1/2 times the electrode core diameter. If you go too slow you may have burn-through or slag will flow back into the weld causing pits, and a wide bead with excess overlap will occur. Also, the additional heat will cause increased distortion. Going to fast will cause a narrow V shaped bead with poor penetration.

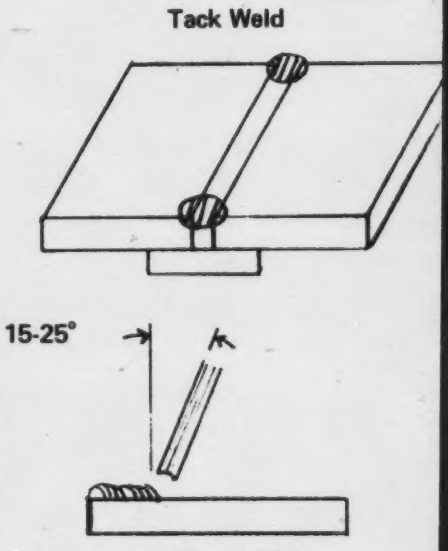


Figure 10a

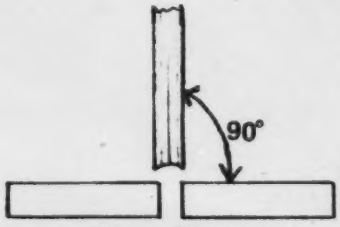


Figure 10b

INFORMATION SHEET

NOTES

Step 8 Fill the crater

At the end of the bead, momentarily shorten the arc, return the electrode to a 90 degree angle and then raise the electrode to break the arc. Holding a long arc at the end of the bead may cause burn-through or a weak fusion of metal in the crater.

Step 9 Examine the bead

Cool the sample. Be sure your goggles are in place. Handle hot metal with your pliars. Using a chipping hammer and wire brush, remove the slag from the weld. Check for slag inclusions, undercutting, and overlap. Turn the plates over and check for penetration.

Step 10 Check the strength

Place the plates in a vice with the bead horizontal with the jaws and just above and toward the stationary jaw. Using a blacksmiths hammer, bend the metal toward the stationary jaw. If the piece breaks because of poor penetration or buildup, reweld the pieces making the necessary corrections (increasing the amperage, slower travel speed, larger gap between the metal.)

Step 11 Practice

Practice running the bead until you can pass the butt weld job check sheet. Your instructor may assign additional practice on other types of butt welds, with various metal thickness, or with different electrodes.

Lap Welding Procedure

Step 1 Prepare your metal

Procedures are similar to those for the open butt joint.

Step 2 Select your electrode

For 1/8 inch metal you will use a 1/8 inch electrode. For 1/4 inch or thicker metal, you may use 5/32 inch electrode.

Step 3 Adjust your amperage setting

For 1/8 inch metal a trial setting of 100 amps should be used. For 1/4 inch metal start with an amperage setting of 130. Watch for undercut along the upper edge of the bead or overlap along the lower edge and adjust your amperage accordingly.

Step 4 Position your metal

Lap the two metal pieces the desired distance. If the metal is unequal in thickness, place the thicker metal on the bottom. Be sure you have a proper ground.

INFORMATION SHEET

NOTES

Step 5 Tack weld the joint

For this exercise tack weld only on the upper surface. In practice, the metal can be tacked on the bottom surface in figure 11 to prevent distortion from causing the metal to pull apart.

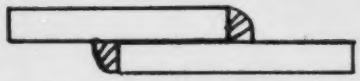


Figure 11

Step 6 Strike an arc

Follow the same procedure as for the butt weld.

Step 7 Run the bead

Tip the electrode 15 degrees in the direction of travel as shown in figure 12 . The electrode should also be tipped 30 to 40 degrees from horizontal as shown in figure 13 so that the rod is perpendicular to the bead. Watch the upper edge for undercut and the lower edge for overlap. Maintain the correct speed of travel to give a uniform bead of proper width. When thicker plate is used on the bottom, the electrode will need to be pointed more directly at it for proper penetration.

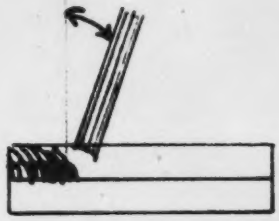


Figure 12

Step 8 Fill the crater

Follow a similar procedure as for the butt weld.

Step 9 Examine the bead

Handle hot metal with a pliars. Cool sample and remove the slag from the weld. Check for those characteristics given on evaluation check list. The vertical and horizontal leg should be of equal length for metal of the same thickness as shown in figure 14 . Check particularly for undercut, overlap, uniformity and evenness.

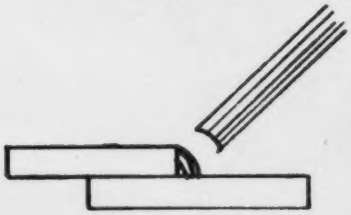


Figure 13

Step 10 Check the strength

Place the plates in a vice with the bead facing and just above the stationary jaw using a blacksmith's hammer. Note the penetration.

Step 11 Practice

Practice running this bead until you can pass the lap weld job check sheet.

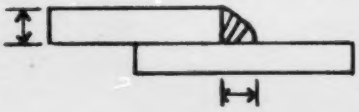


Figure 14

Your instructor may now assign additional practice with various metal thickness or with different electrodes.

DEFINITIONS

Back-up Strip - A strip of metal which is placed behind a welding joint to prevent burn through.

Butt Weld - The edges of two metal pieces are placed side by side and then joined with a bead or a series of beads.

Crater - The depression formed at the end of a welding bead.

Distortion - The beading of metal caused by uneven expansion when it is heated and cooled.

Lap Weld - Two plates are overlapped and the edge of one plate is joined to the side of the other plate.

Overlap - A buildup of the weld material as caused by low amperage.

Penetration - The depth a weld penetrates into the base metals.

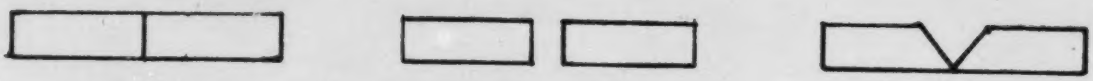
Tack Weld - One or a series of short beads used to hold metal pieces in position until the bead is run.

Undercut - A groove made along the edge of a bead caused by too high of an amperage.

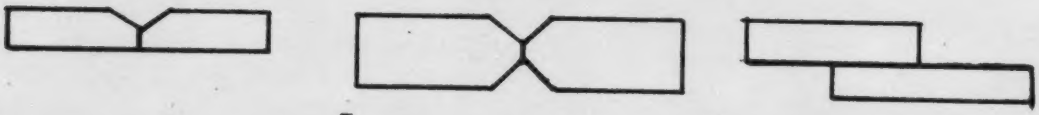
ACTIVITY SHEET

Part I

1. Identify the following Joints:



A. _____ B. _____ C. _____



D. _____ E. _____ F. _____

2. What are two advantages of welding on both sides of a butt joint?
   A. _____
   B. _____
3. What is a back-up strip? _____
   _____
4. For what thickness of metal are the following butt joint recommended?
   A. Closed butt joint _____
   B. Open butt joint _____
   C. Feather edge vee butt joint _____
   D. Shoulder edge vee butt weld _____
   E. Double vee butt joint _____
5. What is the advantage of the open butt joint over the closed butt joint?
   _____
6. What is the advantage of the closed butt joint over the open butt joint?
   _____
7. Show with a diagram why complete penetration is important.

ACTIVITY SHEET

8. Vee joints are ground to an included angle of _____ degrees.
9. The two primary reasons the vee joint is used over the open butt joint are:
   A. _____
   B. _____
10. When would you use a shoulder edge vee joint in comparison to the feather edge vee joint?
    _____
11. How should you fill the crater at the end of the bead? _____
    _____
12. What is the reason for tack welding the pieces to be butt welded?
    _____
13. How can you tell if too high an amperage is used? _____
14. How can you tell if too low an amperage was used? _____
    _____
15. What are two problems to watch for when running a lap bead?
    A. _____
    B. _____
16. Draw in the desired angle to hold the electrode for a lap weld.

17. What can be done to increase the penetration in a butt weld?
    A. _____
    B. _____
18. A trial amperage of _____ would be used for butt welding 1/8 inch metal.
19. How can you check the penetration of a butt weld? _____
    _____

LAB ACTIVITY SHEET

Part II

Student _____

Running a Butt Weld

Materials Needed: Arc Welding Machine and Station, Helmet, Chipping Hammer, Wire Brush, Electrode, Metal Strips.

Type of Butt Weld (circle) closed butt
open butt
feather edge vee
shoulder edge vee
double vee

Metal Thickness: (circle) 1/8, 3/16, 1/4, 5/16, 3/8

Electrode: (circle) E6013, E6011, E6010

Procedure

Steps:

1. Prepare your metal
2. Select your electrode
3. Set up welder and adjust amperage setting
4. Position your metal
5. Tack weld the joint
6. Strike an arc
7. Run the bead
8. Fill the crater
9. Clean and examine the bead
10. Check bead strength
11. Turn in weld for evaluation

STUDENT EVALUATION

Butt Weld

Weld Characteristic	Unacceptable	Acceptable	Excellent
1. Metal properly prepared			
2. Machine properly adjusted			
3. Correct speed is maintained			
4. Correct arc length is maintained			
5. Correct electrode angle is established			
6. Bead appearance is smooth with uniform,			
ripples, free of voids and high spots			

Weld Characteristic	Unacceptable	Acceptable	Excellent
7. Uniform width and buildup of bead			
8. Edge of bead shows no undercut or overlap			
9. Start is full sized with adequate penetration			
10. Crater is filled			

LAB ACTIVITY SHEET

Part III

Student_____

Running a Lap Weld

Materials Needed: Arc Welding Machine and Station, Helmet, Chipping Hammer, and Wire Brush, Electrode, and Metal Strips

Metal Thickness: 1/8, 3/16, 1/4

Electrode: E6013, E6011, E6010

Procedure

Steps:

1. Prepare your metal
2. Select your electrode
3. Set up welder and adjust the amperage setting
4. Position your metal
5. Tack weld the joint
6. Strike an arc
7. Run the bead
8. Fill the crater
9. Clean and examine the bead
10. Check bead strength
11. Turn in weld for evaluation

STUDENT EVALUATION

Lap Weld

Weld Characteristics	Unacceptable	Acceptable	Excellent
1. Machine properly set			
2. Maintains correct arc length			
3. Maintains correct speed			
4. Proper buildup, legs are of equal length			
5. Face of weld is slightly convex			
6. Bead is smooth with close ripples and			
free of voids or high spots 7. Full sized start with penetration			
8. No overlap or undercut of bead edges			
9. Crater properly filled			
10. Deep penetration of weld			

MODULE W77-109

INSTRUCTORS GUIDE

PROGRAM: WELDING

UNIT TITLE: SHIELDED METAL ARC WELDING

MODULE TITLE: Square, Groove, Butt and Lap Joint Welding

Information X **Demonstration** X **Length of Presentation** ____

INTRODUCTION: A properly welded joint will be as strong as the original metal. This requires the proper electrode, machine setting, and welding procedures. The square groove butt joint and the lap joint are the two basic joints that are the easiest for the beginning welding student to master.

In this lesson you will study the uses and construction of these two joints. In the welding lab you will practice running these beads until you can satisfactorily pass the welding test.

COMPETENCIES:

The student should be able to

1. Run a butt weld with acceptable appearance and penetration.
2. Run a lap weld without overlap and undercutting and with acceptable penetration and appearance.

OBJECTIVES:

At the completion of this module the student should be able to:

1. Identify the three types of butt weld and their characteristics.
2. Identify the three types of vee butt welds and their characteristics.
3. Recommend when each type of butt weld should be used.
4. Give the advantages of a lap weld.
5. Set up and run each type of butt weld.
6. Set up and run each type of vee butt weld.
7. Set up and run a lap bead.

MEDIA CENTER
STATE FAIR COMMUNITY COLLEGE
SEDALIA, MISSOURI

Written By:
(Name) Robert Schwindt (Date) 6/77

Learning Groups Designed For:

- X Adult
- X Special Needs
- X Secondary
- X Post Secondary

TEACHING/LEARNING MATERIALS: (Number Included)

1 Student Packet	_____ Video Tape
1 Instructor's Guide, Key, and Script	_____ Film Loop
1 Slide/Tape Presentation W77-109	_____ Cassette Tape

Welding Station
2" x 4" scrap metal, 1/8, 3/16, 1/4, 5/16" thicknesses
E6011 and E6013 Electrodes

INSTRUCTIONAL METHODS SUGGESTED:

This packet is designed for individualized instruction and adaptable for open entry/open exit programs. These materials can be used to supplement traditional instruction methods. Tests can be used for pretesting for advanced placement of students who are already competent in this area.

The instructor should have samples of these welds on display for the student. The instructor should demonstrate, individually or in small groups, the correct procedures for making these welds, and observe and assist the students as they practice. A checklist is provided for evaluating the student performance.

SUGGESTED ACTIVITIES:

1. Have the students begin with the open butt weld using 1/8" E6013 electrode and 3/16" thick metal practice pieces approximately 2" x 4".

2. Test the welds for penetration using a vice and hammer or hydraulic press.

3. Have the student identify weld weaknesses from the weld appearance.

4. When the student becomes proficient with the open butt weld, assign the following skill jobs:

   1. closed butt weld - 1/8" metal
   2. feather edge vee - 3/16" metal
   3. shoulder edge vee - 1/4" metal
   4. double vee - 5/16" metal
   5. above welds using 1/8" E6011
   6. 1/4" metal - 5/32" E6013
   7. E6010 DC+

5. Have the student set up and run lap welds using 1/8" metal and 1/8" E6013 electrode. Alternative lap welds would include:

   1. 1/4" metal 5/32" E6013
   2. 1/8" top plate / 1/4" bottom plate
   3. using E6011 electrode

EVALUATION: (See attached sheets)

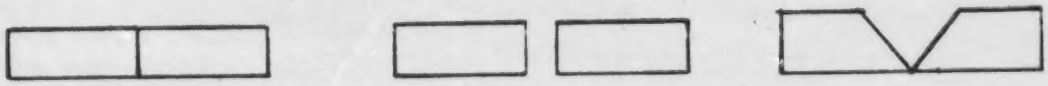
___ ORAL	X WRITTEN	X PERFORMANCE

KEY

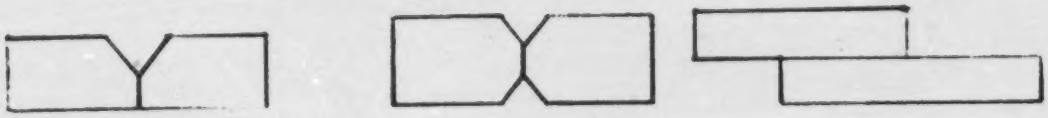
ACTIVITY SHEET

Part I

1. Identify the following Joints:

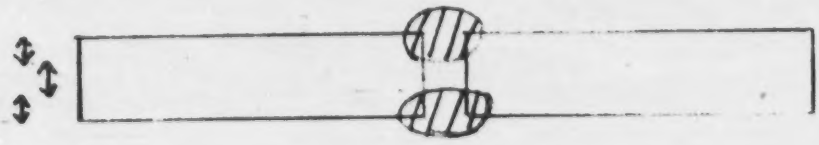


A. closed butt joint B. open butt joint C. feather edge vee joint



D. shoulder edge vee E. double vee joint F. lap weld

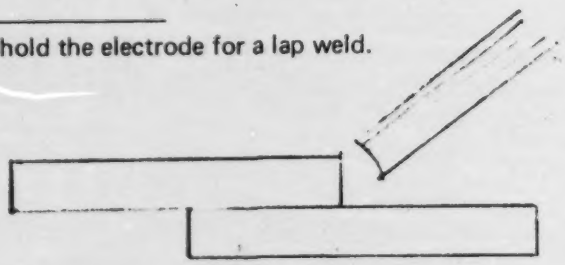
2. What are two advantages of welding on both sides of a butt joint?
   A. weld thicker metal without veeing out
   B. increased penetration and strength
3. What is a back-up strip? a piece of metal placed under a butt welding joint
   Why is it used? to prevent burn-through
4. For what thickness of metal are the following butt joint recommended?
   A. Closed butt joint 1/8 inch or less
   B. Open butt joint 3/16 inch to 3/8 inch
   C. Feather edge vee butt joint 1/8 inch or more
   D. Shoulder edge vee butt weld 3/8 inch or more
   E. Double vee butt joint 1/4 inch or more
5. What is the advantage of the open butt joint over the closed butt joint?
   deeper penetration on thicker metal
6. What is the advantage of the closed butt joint over the open butt joint?
   less chance of burn-through on thinner metal
7. Show with a diagram why complete penetration is important.



KEY

ACTIVITY SHEET

8. Vee joints are ground to an included angle of **60** degrees.
9. The two primary reasons the vee joint is used over the open butt joint are:
   A. **thicker metal for better penetration**
   B. **where metal can only be welded on one side**
10. When would you use a shoulder edge vee joint in comparison to the feather edge vee joint?
    on thicker metal
11. How should you fill the crater at the end of the bead? **shorten the arc, straighten the electrode, then raise electrode and break arc**
12. What is the reason for tack welding the pieces to be butt welded?
    to prevent joint from spreading because of heat expansion
13. How can you tell if too high an amperage is used? **undercutting along edges**
14. How can you tell if too low an amperage was used? **overlap, poor penetration**
15. What are two problems to watch for when running a lap bead?
    A. **under cut**
    B. **overlap**
16. Draw in the desired angle to hold the electrode for a lap weld.



17. What can be done to increase the penetration in a butt weld?
    A. **increase amperage**
    B. **increase spacing of plates**
18. A trial amperage of **100** would be used for butt welding 1/8 inch metal.
19. How can you check the penetration of a butt weld? **placing in a vice and bending with a hammer, or using a press**

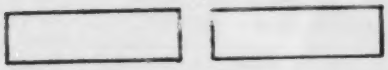
_____ Pre-test
_____ Post-test

KEY Student _____

STUDENT EVALUATION
BUTT OR LAP WELDS

1. Sketch the following joints.

A. open butt joint

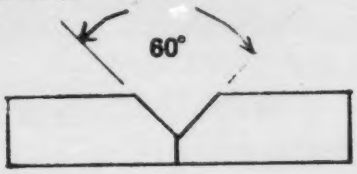


B. feather edge vee joint

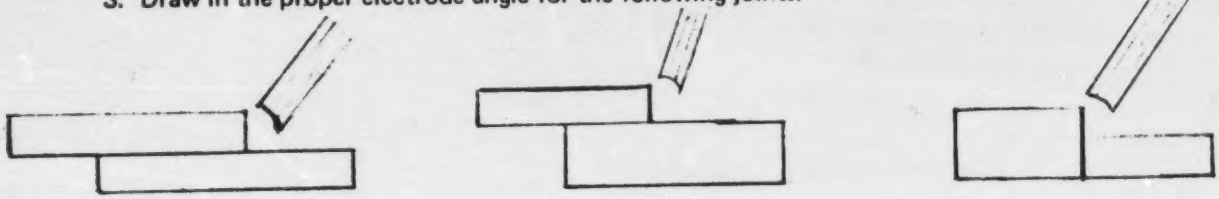
C. double vee joint

D. closed butt joint

2. Put in the correct included angle for a vee butt weld.



3. Draw in the proper electrode angle for the following joints.



4. The most common methods of veeing metal is with a **grinder** .
5. A **back-up strip** can be used with an open butt weld to prevent burn-through.
6. **Overlap** occurs when the edges of a bead pile up and penetration is poor.
7. **Undercut** occurs when a groove is burned along the edge of a bead caused of too high of an amperage setting.
8. The metal pieces for a butt weld are **tacked** to prevent them from spreading during the weld.

KEY
STUDENT EVALUATION

9. Outline the procedure to follow in filling the crater at the end of the bead.
   A. shorten the arc
   B. straighten electrode angle
   C. raise electrode to break arc
10. A long arc should be held momentarily at the start of the bead to preheat the metal and increase penetration.

Multiple Choice (Place answers in blank to left)

C 1. For welding sheet metal of 1/8 inch or less, it would be best to use a:
   A. Double vee joint
   B. Shoulder edge vee joint
   C. Closed butt joint
   D. Open butt joint

A 2. For butt welding 3/8 inch steel, it would be best to use a:
   A. Double vee joint
   B. Shoulder edge vee joint
   C. Closed butt joint
   D. Open butt joint

B 3. On 1/8 inch metal a _____ joint should be used.
   A. Shoulder edge
   B. Feather edge
   C. Double vee

E 4. Undercutting in a lap weld may be caused by _____.
   A. wrong electrode angle
   B. too high amperage
   C. too fast speed
   D. all of the above
   E. a and b

A 5. When running a butt weld, the electrode should be tipped _____ degrees in the direction of travel.
   A. 15
   B. 30
   C. 45
   D. 90

True or False (circle answer)

(T) F 1. A lap joint is more suitable than a butt weld when the joint is subject to heavy bending stresses.

(T) F 2. You will have more of a problem with undercutting and overlapping with a lap weld than with a butt weld.

KEY
STUDENT EVALUATION

(T) F 3. The strength of a butt weld can be increased by welding on both sides of the joint.

T (F) 4. An open butt joint is more suitable for welding thin sheet metal than the closed butt joint.

T (F) 5. If you have adequate penetration, the bead will break instead of the metal pulling apart when bent in a vice or press.

(T) F 6. The width of the bead deposit on the bottom plate in a lap weld should be approximately the same as the thickness of the top plate.

(T) F 7. When pieces of unequal thickness are butt welded, the electrode should be directed more toward the thicker plate.

T (F) 8. When pieces of unequal thickness are lap welded, it is best to have the thinner metal on the bottom.

(T) F 9. There is an increased chance of burn-through if an open butt joint is used for welding thin sheet metal.

T (F) 10. Overlap can be reduced by decreasing the amperage setting.

W77-109-SQUARE GROOVE BUTT AND LAP JOINT SHIELDED METAL ARC WELDING

1. THIS IS A PRESENTATION OF THE MEDIA CENTER, STATE FAIR COMMUNITY COLLEGE.

2. SLIDE/TAPE PRESENTATION W77-109-SQUARE GROOVE BUTT AND LAP JOINT SHIELDED METAL ARC WELDING

3. THESE TWO BASIC WELDING JOINTS ARE USED ON THE CONSTRUCTION OF MOST STEEL ITEMS SUCH AS TANKS,

4. FARM MACHINERY,

5. OR STRUCTURAL SUPPORTS FOR BUILDINGS.

6. WHEN YOU HAVE COMPLETED THIS MODULE YOU SHOULD BE ABLE TO:

7. (1) IDENTIFY THE THREE TYPES OF BUTT WELDS AND THEIR CHARACTERISTICS;

8. (2) IDENTIFY THE THREE TYPES OF VEE BUTT WELDS;

9. (3) RECOMMEND WHEN EACH TYPE OF BUTT WELD SHOULD BE USED;

10. (4) GIVE THE ADVANTAGES OF A LAP WELD;

11. (5) SET UP AND RUN EACH TYPE OF BUTT WELD;

12. (6) SET UP AND RUN EACH TYPE OF VEE BUTT WELD;

13. (7) AND SET UP AND RUN A LAP WELD.

14. THERE ARE THREE MAJOR TYPES OF BUTT JOINTS: THE CLOSED BUTT JOINT, THE OPEN BUTT JOINT, AND THE VEE BUTT JOINT.

15. THE PIECES OF METAL ARE PLACED SIDE TO SIDE WITH NO GAP BETWEEN THEM FOR THE CLOSED BUTT JOINT. THIS JOINT IS GENERALLY USED ON THIN SHEET OR METAL ONE-EIGHTH INCH OR THINNER

16. THIS LESSENS THE CHANCE OF BURN-THROUGH.

17. ON THICKER METAL, IT IS HARD TO GET PENETRATION AND A STRONG JOINT WITH THE CLOSED BUTT JOINT.

18. A SPACE IS LEFT BETWEEN THE TWO METAL PIECES WITH THE OPEN BUTT JOINT. METAL FROM THREE-SIXTEENTHS TO THREE-EIGHTHS INCH IS OFTEN WELDED WITH AN OPEN BUTT WELD.

19. DEEP PENETRATION IS REQUIRED FOR MAXIMUM STRENGTH. BY INCREASING THE AMPERAGE OR THE SPACING, PENETRATION CAN BE INCREASED.

20. TWO OTHER PROCEDURES CAN BE USED TO INCREASE PENETRATION. THE METAL CAN BE WELDED ON EACH SIDE.

21. OR A BACKUP STRIP CAN BE USED TO GIVE FULL PENETRATION WITHOUT BURN-THROUGH.

22. FOR METAL ONE-QUARTER INCH OR THICKER, THE METAL IS OFTEN VEED OUT FOR BETTER PENETRATION. THIS MAY BE DONE WITH A GRINDER OR OXYACETYLENE TORCH.

23. ON THINNER METAL OF ONE-EIGHTH INCH OR MORE, A FEATHER EDGE VEE JOINT IS OFTEN USED.

    THE INCLUDED ANGLE OF VEE JOINTS SHOULD BE 60 DEGREES.

24. BECAUSE OF THIS THIN, FEATHER EDGE, THERE IS A CHANCE OF BURN-THROUGH. A BACKUP STRIP SHOULD BE USED TO PREVENT THIS.

25. WHEN THE METAL REACHES A THICKNESS OF ONE-QUARTER INCH OR MORE, A SHOULDER EDGE VEE JOINT SHOULD BE USED. THIS SHOULDER SHOULD BE FROM ONE-SIXTEENTH TO ONE-EIGHTH INCH.

26. A DOUBLE VEE IS RECOMMENDED WHEN THE METAL IS OVER THREE-EIGHTHS INCH THICK.

27. IT IS EASIER TO INSURE COMPLETE PENETRATION WHEN THE DOUBLE VEE JOINT IS USED.

28. LAP WELDS ARE USED WHEN THE JOINT IS SUBJECT TO HEAVY BENDING STRESSES. FOR ADDED STENGTH, THE JOINTS ON BOTH THE UPPER AND LOWER SURFACES SHOULD BE WELDED.

29. IN THIS MODULE YOU WILL BE RUNNING THE BASIC BUTT AND LAP WELDS. BY FOLLOWING THE FOLLOWING PROCEDURES, YOU SHOULD, WITH PRACTICE, BE ABLE TO PRODUCE A STRONG WELD.

30. YOU MUST PREPARE YOUR METAL. CLEAN OFF ANY RUST WITH A WIRE BRUSH.

31. USE THE GRINDER TO PREPARE THE PROPER VEE FOR THICKER METAL.

32. SELECT YOUR ELECTRODE FOR THIS LESSON. WHEN USING THREE-SIXTEENTHS INCH METAL, SELECT ONE-EIGHTH INCH E 60 13 ELECTRODE.

33. ADJUST YOUR AMPERAGE SETTING. THIS WILL DEPEND UPON YOUR PARTICULAR WELDER BUT A TRIAL AMPERAGE OF 100 SHOULD BE USED. FASTEN YOUR GROUND CLAMP TO THE TABLE OR METAL.

34. SPACE YOUR METAL APPROXIMATELY THREE-THIRTYSECONDS OF AN INCH APART. USE A ONE-EIGHTH INCH SCRAP OF METAL FOR A BACK UP STRIP.

35. TACK WELD THE JOINT WITH A SHORT BEAD AT EACH END OF THE JOINT. CHIP THE SLAG FROM THESE TACKS.

36. IF THE PIECES ARE NOT TACKED, HEAT EXPANSION WILL CAUSE THEM TO SPREAD.

37. STRIKE AN ARCH WITH EITHER A SCRATCHING OR A TAPPING MOTION.

38. RUN THE BEAD. TIP THE ELECTRODE FIFTEEN TO TWENTY-FIVE DEGREES IN THE DIRECTION OF TRAVEL.

39. BE SURE THAT THE ELECTRODE IS PERPENDICULAR TO THE BASE PLATES.

40. AT THE END OF THE BEAD, FILL THE CRATER BY MOMENTARILY SHORTENING THE ARC AND STRAIGHTENING THE ELECTRODE.

41. COOL THE WELD. USING A CHIPPING HAMMER AND WIRE BRUSH, REMOVE THE SLAG AND INSPECT THE WELD.

42. WATCH FOR UNDERCUTTING ALONG THE EDGE CAUSED BY TOO HIGH AMPERAGE.

43. TOO LOW OF AN AMPERAGE SETTING WILL CAUSE OVERLAP. ADJUST YOUR MACHINE ACCORDINGLY.

44. TURN THE PLATE OVER AND CHECK FOR PENETRATION.

45. CHECK THE STENGTH OF THE WELD BY PLACING THE WELD IN THE VICE WITH THE BEAD JUST ABOVE AND TOWARD THE STATIONARY JAW.

46. BEND THE METAL TOWARD THE STATIONARY JAW USING A BLACKSMITH'S HAMMER. THE METAL WILL BEND BEFORE THE BEAD BREAKS WITH A GOOD WELD.

47. IF THE WELD BREAKS, REWELD THE PIECES MAKING PROPER ADJUSTMENT FOR AMPERAGE, SPACING, OR SPEED.

48. WHEN YOU BECOME PROFICIENT WITH THE OPEN BUTT JOINT, PRACTICE A CLOSED BUTT JOINT AND A VEE JOINT.

49. MANY OF THE SAME PROCEDURES SHOULD BE USED WITH THE LAP WELD. LAP THE METAL THE DESIRED THICKNESS.

50. TACK WELD THE PIECES.

51. STRIKE AN ARC AND RUN THE BEAD. LEAN THE ELECTRODE FIFTEEN DEGREES IN THE DIRECTION OF TRAVEL.

52. LEAN THE ELECTRODE AT A THIRTY TO FORTY-FIVE DEGREE ANGLE TO THE HORIZONTAL SURFACE. WATCH THE UPPER EDGE FOR UNDERCUTTING AND THE LOWER EDGE FOR OVERLAP.

53. IF THE UPPER EDGE STARTS TO UNDERCUT, DIRECT THE ELECTRODE MORE TOWARD THE LOWER PLATE, OR LOWER THE AMPERAGE.

54. IF THERE IS OVERLAP ON THE LOWER SURFACE, DIRECT THE ELECTRODE MORE TOWARD THE UPPER PLATE OR INCREASE THE AMPERAGE.

55. WHEN THE METAL IS UNEVEN IN THICKNESS, DIRECT THE ELECTRODE MORE TOWARD THE THICKER PLATE.

56. COOL YOUR BEAD. REMOVE THE SLAG AND INSPECT THE WELD. A PROPER SIZED BEAD WILL BE SLIGHTLY CONVEX WITH THE HORIZONTAL LEG ABOUT EQUAL TO THE THICKNESS OF THE UPPER PLATE.

57. PLACE THE WELD IN A VICE AND TRY TO BREAK THE BEAD. THIS WILL CHECK THE PENETRATION AND STENGTH OF THE BEAD.

    MAKE THE NEEDED CORRECTIONS FOR AMPERAGE, ELECTRODE ANGLE, AND SPEED OF TRAVEL.

58. PRACTICE RUNNING THIS BEAD UNTIL YOU BECOME PROFICIENT.

59. THIS PRESENTATION WAS DEVELOPED BY ROBERT SCHWINDT AND PRODUCED BY CHARLES COGAR FOR THE MEDIA CENTER.

60. THIS IS THE END OF THIS SLIDE/TAPE PRESENTATION. PLEASE REWIND THIS TAPE AND RETURN THE MATERIALS TO THEIR STORAGE AREA.

Appendix F

Survey of Institutions Utilizing Welding Modules

EVALUATION REPORT

Welding Modules
State Fair Community College

Module Title _____ Evaluator _____

(Please complete one form for each module) Date _____

A. How was this module used? (please check)

_____ Class lecture/discussion

_____ Small group instruction

_____ Individualized instruction

B. How many times was it used? (please give number)

_____ Actual times used

_____ Students utilizing materials

C. What type of equipment was it used with? (please check)

_____ Caramate type (self-contained viewing screen)

_____ Slide projector with large screen

D. Materials used (please check)

_____ Pretest

_____ Student packet

_____ Lab sheets

_____ Posttest

E. Were there any mechanical problems? (please check)

_____ Carousel tray did not function properly

_____ Slides became warped; dropped out of mounts

_____ Tape failed to advance automatic projectors

_____ Tape became slurred, broken, etc.

F. What type of program was it used with? (please check)

_____ Secondary - freshmen & sophomores

_____ Secondary - juniors & seniors

_____ Post-secondary

_____ Adult

_____ Disadvantaged and handicapped

G. What was your reaction to the information presented?

1. Are the objectives of this module representative of the knowledge and techniques required of the welding industry?

2. What, if anything, should be added to this module?

3. What, if anything, should be deleted from this module?

4. Are the instructions/procedures for the student clear?

5. What, if any, instructions/procedures should be deleted?

6. What, if any, instructions/procedures should be added?

7. Does the name of the module represent the material included?

8. Are the instructions for the teacher, if available, adequate?

9. Is the instructional packet attractive, readable, and well organized?

10. Are the opportunities for teacher-student interaction sufficient?

11. Is the module appropriate, in your opinion, for the following groups?

_____ Secondary

_____ Post-secondary

_____ Adults

_____ Special needs

_____ Others _____

12. Do the activities increase the student's ability to meet the stated objectives?

13. If not, which activities are unnecessary or inappropriate?

14. What additional activities would you suggest?

15. From your experience as a teacher, does the test distinguish successful welding students from unsuccessful welding students?

16. Does the test match the stated objectives?

17. What test items should be dropped?

18. What were the results of the test in your class?

Pretest: Low _____ High _____ Average _____

Posttest: Low _____ High _____ Average _____

H. What was your reaction to the slide/tape presentation?

1. Was the length of the script

Too long _____ Too short _____ About right _____

2. Does the script content explain the concepts? Yes _____ No _____

If not, for which slides? _____

3. Were the audible beeps -

   Too loud _____ Too soft _____

4. Was the audio quality acceptable? (pleasant tone, pronunciation proper)

   Yes _____ No _____

5. Was the tape speed -

   Too fast _____ Too slow _____ About right _____

6. Was the slide quality acceptable? Yes _____ No _____

   If not, for which slides? _____

7. Did the content for each slide match the script?

   Yes _____ No _____

   If not, for which slides? _____

8. Did the script follow a logical and smooth flowing order?

   Yes _____ No _____

   If not, what was the problem? _____

9. Is the number of slides adequate to explain the concepts?

   Too few _____ Too many _____ About right _____

10. Does the slide presentation agree with the student packet?

    Yes _____ No _____

    If not, describe why. _____

Appendix G

Curriculum Development Workshop

Final Report

FINAL REPORT

CURRICULUM DEVELOPMENT WORKSHOP

Nila Hibdon
Dean, Vocational-Technical Education
State Fair Community College
Sedalia, Missouri 65301

Dan Blackledge
Director, Media Center
State Fair Community College
Sedalia, Missouri 65301

January 7, 1977

ABSTRACT

State Fair Community College sponsored a Curriculum Development Workshop for instructional staff on January 4, 5, and 6, 1977. Resource persons from The Center for Vocational Education at Ohio State University, University of Missouri, and State Fair Community College provided in-depth work sessions in the curricular areas of Objectives, Content, Media, and Evaluation.

A total of 40 instructors and support staff were involved in the four sessions. By involving each participant in each of the four sessions, a thorough exposure to the total curriculum development process was attained. Post-workshop evaluation indicated that 87 percent of the participants felt workshop objectives were met and 100 percent thought the workshop was helpful to them as an instructor.

Goals of the workshop were to provide technical expertise in curriculum development and to foster an attitude of motivation and innovation on the part of instructional staff. The workshop provided a vehicle to provide these two types of services to a large group at one time.

Recommendations received as a result of this experience include putting workshops of this type on a continuing basis by scheduling into the school calendar; providing additional emphasis on media, particularly scripting and equipment, and providing more opportunities for a very practical type work session when writing would be accomplished.

I. Statement of the Problem

State Fair Community College has been actively involved in curriculum development since 1970. During this time the college has received funding for numerous projects in Business and Office Education, Agri-Business, Health Occupations, and others. However, because of the pressure to produce and the emphasis placed on designing modern, innovative curricula materials, no systematic effort has ever been assembled to train most instructors in the development process.

Since nearly all curriculum development is accomplished by the instructional staff, it would seem to be cost effective to provide a workshop for a large group as opposed to the individual basis which has been pursued in the past. This workshop was designed to fulfill that need by exposing 40 instructors to resource specialists in each of the four areas of Objectives, Content, Media, and Evaluation.

II. Objectives

1. Develop the attitude that no two learners learn the same material, at the same rate, in the same way. This attitude was fostered throughout the workshop through emphasizing the total curriculum development process from task analysis to evaluation.
2. Determine how systematic instruction can enhance student progress. Alternative instructional methods were explored to show that systematic instruction is the most effective type of instruction.
3. Analyze the advantages of providing alternate learning strategies. Alternate learning strategies were emphasized through special sessions on media and on performance evaluation.

4. Demonstrate the ability to provide alternate methods for learning materials. The opportunity to demonstrate this occurred in three different sessions. The content session designed a teaching-learning model; the media session observed slide/tape series and learned how to operate selected pieces of equipment; and the evaluation session analyzed performance tests.
5. Write behaviorally stated objectives. Task analysis and objectives were discussed in detail during a special session on objectives. Time did not allow for writing any objectives.
6. Determine the competencies needed to make their course relevant. Course competencies and their benefit to an instructional program were discussed during a three hour session.
7. Translate identified objectives into content. The content session explored several theories of learning, delved into recent research including learning profiles, and analyzed how to structure content to meet objectives and evaluation.
8. Design student activities which will enhance student's cognitive, psychomotor, and affective perception of the content. Instructor interaction during all sessions provided many unique and effective activities by which instructors can stimulate students to learn more and learn it better.
9. Determine how media can increase the effectiveness of the instructional program. Media Specialists on the staff at State Fair Community College presented a session on how to use media effectively. Among the techniques used by them were the presentation of several slide/tape and video tape productions showing several different styles available.

10. Determine different types of mediation available, and the best one to use for a given lesson. State Fair Community College Media Specialists made a special presentation on Thursday morning in the Learning Resources Center Media Forum. At this session they explored in detail the different types of media available, as well as use of specialized equipment such as the Port-A-Pak.

11. Write a script using basic techniques for clarity, flow, and content. Script writing, tape narration and sound effects were discussed and techniques clarified. Time was not available for individual scripting.

12. Prepare evaluation items which are clearly stated and reflect criteria contained in the objectives. A special session on performance evaluation was presented by an evaluation specialist from The Center for Vocational Education. Different types of evaluation were discussed and the advantages of designing performance evaluation items clarified. Time did not allow for developing actual evaluation items.

III. Population and Sample

The population for the workshop was composed of members of the instructional staff at State Fair Community College. Participants included 29 Vocational-Technical instructors, 4 Arts and Science instructors, 4 Community Services staff members, and 4 Placement/Counseling specialists.

An invitation was extended to all instructional and support staff at the college. Primary emphasis was placed upon the Vocational-Technical faculty because they have traditionally been the most involved with curriculum development efforts.

IV. Conclusions and Recommendations

Workshop evaluation forms filled out by the participants at the workshop's conclusion indicated the workshop was a worthwhile experience for everyone involved. Ninety-four percent of the participants indicated the workshop was valuable and effective in stimulating interest and motivation in both instruction and curriculum development.

The participants indicated the workshop met its broad goals of providing technical expertise as well as motivation. It was particularly effective in meeting the objectives of developing an attitude about curriculum development, providing alternate strategies, task analysis, use of media, and performance evaluation.

The many positive comments on workshop organization indicated that the three-hour sessions rotating between four presentations were appropriate. The workshop was held away from the college to reduce distractions and create a better learning atmosphere. It was concluded by the workshop directors and resource specialists that this was a very successful first step toward staff and curriculum development.

The following recommendations have been gleaned from the workshop evaluations, plus impressions received by the directors and resource personnel:

1. This type of workshop needs to be put on a continuing basis by scheduling into the school calendar or some other method.
2. Additional workshops need to be involved with practical experience in development.
3. More in-depth work needs to be done in the areas of objectives, content, media, and evaluation.
4. Students should be included in the workshop to provide for additional views on curriculum development.

V. Procedures

The workshop was held at the Ramada Inn under the direction of Nila Hibdon, Dean of Vocational-Technical Education at State Fair Community College, and Dan Blackledge, Director of the Media Center also at State Fair Community College. Resource Specialists included Mac McCaslin (performance evaluation) and Paul Schroeder (objectives) from The Center for Vocational Education at Ohio State University; Walter Hunter (content and teaching-learning models) from the University of Missouri; and the Media Staff at State Fair Community College.

The workshop agenda was set up to provide four sessions of three hours each.[2] Instructors were divided into three groups and rotated between the sessions so all participants could attend each session. A survey was administered to all potential participants before the workshop to determine the competency level of each and thus set the course for the workshop.[3] At the conclusion of the three-day workshop an evaluation form was administered to determine its effectiveness. The results of this evaluation were analyzed and compiled in a composite form.[4]

2 See Appendix B
3 See Appendix C
4 See Appendix D

CURRICULUM DEVELOPMENT WORKSHOP

Jaunary 4, 5, 6, 1977

E V A L U A T I O N

Please answer the following questions in a brief statement.

1. Were the objectives of this workshop met as stated?

   Yes _____ Undecided _____ No _____

   If you answered undecided or no, what did you feel was not accomplished.

2. Will this workshop be helpful to you as an instructor?

   Yes _____ Undecided _____ No _____

3. What was the most beneficial to you?

4. What was the least benficial to you?

5. What would you like to have included in another Curriculum Development Workshop?

6. What suggestions would you make for improvement in another Curriculum Development Workshop?

7. Please make a comment on your "over-all" feeling about the effectiveness of this workshop.

8. I felt this workshop was: (check one)

Not too meaningful _____ Better than most _____
About like most _____ Outstanding _____

STAFF CURRICULUM DEVELOPMENT WORKSHOP

RAMADA INN, SEDALIA, MISSOURI
January 4, 5, 6, 1977

Tuesday, January 4

1:00 pm General Session - Individualized Instruction at SFCC

1:30 pm Group A - Objectives
Group B - Media
Group C - Evaluation

5:00 pm Dinner

6:00 pm Group A - Evaluation
Group B - Objectives
Group C - Media

9:00 pm Adjourn

Wednesday, January 5

8:30 am Coffee and donuts

9:00 am Group A - Content
Group B - Evaluation
Group C - Objectives

12:00 (Noon) Lunch

1:00 pm Group A - Media
Group B - Content
Group C - Evaluation - Objectives question and answer period

Thursday, January 6

8:30 am Coffee and donuts

9:00 am Group A
Group B) Video Presentations
Group C - Content

12:00 (Noon) Lunch

1:00 pm General Session - workshop evaluation, individual presentations

Name_____

CURRICULUM WORKSHOP PLANNING SURVEY

1. Are you familiar with the format currently being used by the Media Center in development of curricula?

   Yes_____ No_____

2. What does the term "behavorial objective" mean to you?

3. Describe competency-based instruction.

4. What is your philosophy of individualized instruction?

5. What method of instruction do you use in your classes?

6. Describe the teaching outlines you currently use in class daily. (Attach a sample - this might be just an outline or it could be an individualized packet.)

7. Have you ever developed individualized materials?

   Yes_____ No_____

8. How do you evaluate the courses you teach?

9. List A/V hardware you now use in your classes. Example: over-head, record player, slide/tape, etc.

10. Have you ever written a script to be mediated?

Yes_____ No_____

11. What advantages/contributions do you think mediated materials would make in your instruction?

12. List disadvantages or problems mediated materials could cause in your classes.

13. What are the reasons an instructor might give for not using mediated instruction as a part or complement to the total instructional program?

14. List at least four items or topics that you would like to learn from an in-service workshop.

COMPOSITE EVALUATION

CURRICULUM DEVELOPMENT WORKSHOP

January 4, 5, 6, 1977

Item		Group A	B	C
1. Objectives Met	Yes	7	3	10
	No	0	1	2
2. Workshop was Helpful	Yes	8	6	12
	No	0	0	0
3. Most Beneficial	Objectives	0	0	0
	Content	6	3	7
	Media	2	1	2
	Evaluation	2	3	9
4. Least Beneficial	Objectives	7	5	6
	Content	0	0	0
	Media	0	0	0
	Evaluation	0	0	1
5. How Beneficial	Not Too	0	0	1
	Like Most	1	0	3
	Better Than Most	8	4	7
	Outstanding	0	0	2

6. Session Rating:	Poor	Fair	Good	Excellent
a. Objectives	8	11	2	1
b. Content	0	1	11	11
c. Media	0	1	14	6
d. Evaluation	0	1	10	9

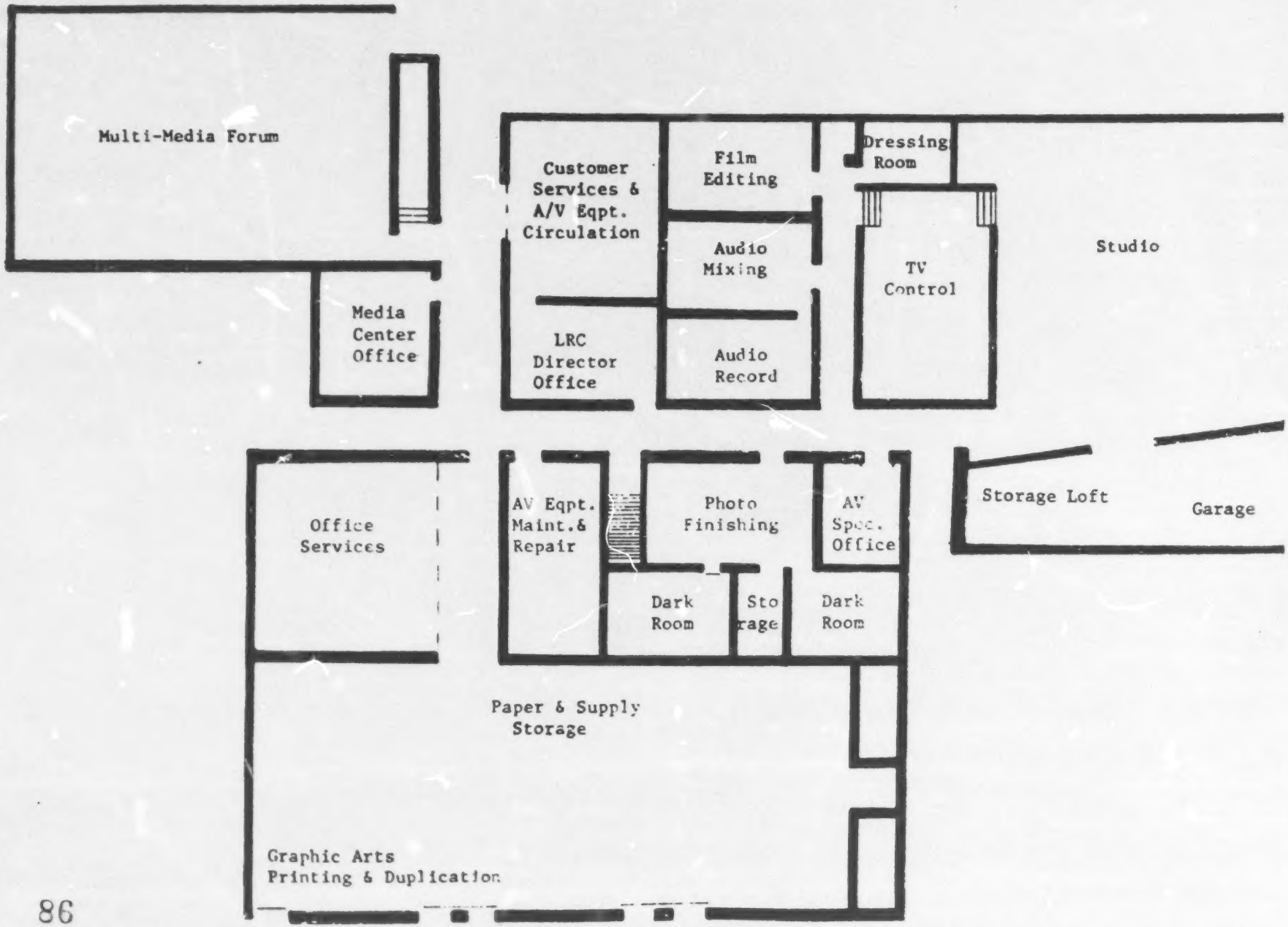
7. Workshop Effectiveness:	
Of Little Value	1
Somewhat	0
Valuable	18

8. Topics for Another Workshop: Practical exercise in all areas, more of same, additional presentations by Walt Hunter, more on media, more task analysis, sharing of materials developed, session on learning profiles, attitudes, critique of work by consultants.

9. Suggestions for Improvement: More practical exercises, more on objectives, include students, put on a continuing basis, no night sessions, more time in sessions, advance notice, develop a course under supervision, specialization of content.

Appendix H

Floorplan of Media Center


Multi-Media Forum
Media Center Office
Customer Services & A/V Eqpt. Circulation
Film Editing
Dressing Room
Audio Mixing
TV Control
Studio
LRC Director Office
Audio Record
Office Services
AV Eqpt. Maint.& Repair
Photo Finishing
AV Spec. Office
Storage Loft
Garage
Dark Room
Sto rage
Dark Room
Paper & Supply Storage
Graphic Arts Printing & Duplication

Appendix I

Media Center Brochures

a. Agribusiness

b. Business and Office Occupations

c. Health Occupations

d. Welding

540 CUTTING A STENCIL

Description: Presentation of parts of a stencil, markings on a stencil, preparation of typewriter for stencil typing, and error correction techniques.

Materials Included: Student Manual, Handout Sheets, Checkpoint Sheet, Instructor Guide, and Slide/Tape Presentation (28 slides/1 cassette tape) in Carousel Tray.

Cost: Missouri $16 - additional Student Manuals are $ .20
Out-of-State $18 - additional Student Manuals are $ .25

541 AND 542 STENCIL DUPLICATION

Description: Presentation of the parts of the stencil duplicator (A.B. Dick) and the adjustments to be made to achieve clear, well-balanced copy.

Presentation 541: Introduction to the Stencil Duplicator
Presentation 542: Operating the Stencil Duplicator

Materials Included: Student Manual, Sample Problems, Checkpoint Sheets, Instructor Guide and Key, and Slide/Tape Presentations (77 slides/2 cassette tapes) in Carousel Tray.

Cost: Missouri $65 - additional Student Manuals are $ .10
Out-of-State $74 - additional Student Manuals are $ .12

550-553 CLEANING THE TYPEWRITER

Description: Informational presentation of the requirements for daily and weekly care of the typewriter, demonstration of use of type cleaners, demonstration of how to clean the IBM Selectric, and demonstration of how to clean the IBM Model D and Executive typewriters.

Presentation 550: Caring for the Electric Typewriter
Presentation 551: Proper Use of Type Cleaners
Presentation 552: Cleaning the IBM Selectric Typewriter
Presentation 553: Cleaning the IBM Model D and Executive Typewriters

Materials Included: Student Manual, Checkpoint Sheet, Instructor Guide and Key, and Slide/Tape Presentations (202 slides/4 cassette tapes) in Carousel Tray.

Cost: Missouri $80 - additional Student Manuals are $ .15
Separate Presentations are $36 each
Out-of-State $91 - additional Student Manuals are $ .20
Separate Presentations are $ 41 each

570 - 572 BURROUGHS ACCOUNTING COMPUTER OPERATION

Description: Presentation of the machine parts and their application in an introductory format, followed by specific instructions for preparation of payroll and accounts payable records for the Burroughs L6000.

Presentation 570: Introduction
Presentation 571: Payroll Procedures
Presentation 572: Accounts Payable Procedures

Materials Included: Student Manual, Application Problems, Instructor Key and Guide, and Slide/Tape Presentations (102 slides/3 cassette tapes) in Two Carousel Trays.

Cost: Missouri $90 - additional Student Manuals for 570 and 571 are $ .65
Additional Student Manuals for 572 are $ .90 and Separate Presentations are $36 each
Out-of-State $102 - additional Student Manuals for 570 and 571 are $ .75
Additional Student Manuals for 572 are $1.00 and Separate Presentations are $41 each

580 - 582 OFFSET DUPLICATION

Description: Presentation of preparation of the offset master by typing, drawing or using photocopy equipment the operating parts of the offset duplicator; and how to use the machine to produce clear, well-balanced copy.

Presentation 580: Preparaing Offset Masters
Presentation 581: Preparing the Offset (A.B. Dick Model 324) for Operation
Presentation 582: Operation of the Offset (A.B. Dick Model 324) Duplicator

Materials Included: Student Manual, Sample Projects, Checkpoint Sheet, Instructor Guide and Key, and Slide/Tape Presentations (73 slides/3 cassette tapes) in Carousel Tray.

Cost: Missouri $70 - additional Student Manuals are $ .15
Presentation 580 ONLY - $26
Out-of-State $80 - additional Student Manuals are $ .20
Presentation 580 ONLY - $30

605 - 609 ALPHABETIC FILING RULES (GREGG RULES)

Description: Visual presentation of the alphabetic filing rules (Gregg Rules) with application problems and drill exercises.

Materials Included: Student Manual, Checkpoint Sheet, Application Problems, Instructor Guide and Key, and Slide/Tape Presentations (144 slides/5 tapes) in Carousel Trays.

Cost: Missouri $75 - additional Student Manuals are $ 1.60
Out-of-State $80 - additional Student Manuals are $ 1.80

650-652 ALPHABETIC FILING RULES (SOUTH-WESTERN RULES)

Description: Visual presentation of the alphabetic filing rules (South-western Rules) with application problems and exercises.

Materials Included: Student Manual, Checkpoint Sheet, Application Problems, Instructor Guide and Key, and Slide/Tape Presentations (151 slides/3 cassette tapes) in Carousel Trays.

Cost: Missouri $75 - additional Student Manuals are $1.00
Out-of-State $80 - additional Student Manuals are $1.10

700 OFFICE PROCEDURES TIPS

Description: Includes tips for collating, routing, desk organization, supply cabinet organization, housekeeping duties, responsibilities before leaving the office, etc.

Materials Included: Student Manual, Checkpoint Sheet, Instructor Guide and Key, and Slide/Tape Presentation (65 slides/1 cassette tape) in Carousel Tray.

Cost: Missouri $30 - additional Student Manuals are $ .10
Out-of-State $34 - additional Student Manuals are $ .12

520 TEN-KEY ADDING MACHINE OPERATION

Description: Correct finger position for the ten-key calculator, drill for development of touch control, and operation of the Olivetti-Underwood ten-key adder.

Materials Included: Student Manual, Performance Tests, Checkpoint Sheet, Instructor Guide, and Slide/Tape Presentation (26 slides/1 cassette tape) in Carousel Tray.

Cost: Missouri $16 - additional Student Manuals are $ .10
Out-of-State $18 - additional Student Manuals are $ .12

521 ELECTRONIC PRINTING CALCULATOR

Description: Presentation of the use of machine parts (Sharp Model CS-523) and steps to follow for completion of various problems.

Materials Included: Student Manual, Performance Tests, Checkpoint Sheet, Instructor Guide and Key, and Slide/Tape Presentation (20 slides/1 cassette tape) in Carousel Tray

Cost: Missouri $16 - additional Student Manuals are $ .10
Out-of-State $18 - additional Student Manuals are $ .12

530, 531, AND 532 DICTATION-TRANSCRIPTION MACHINE OPERATION

Description: Identification of machine parts, index slip, dictation techniques, and transcription techniques.

Presentation 530: IBM Model 172 Executary
Presentation 531: IBM Model 213 Executary
Presentation 532: Dictaphone Cassette Master

Materials Included: Student Manual, Handout Sheets, Checkpoint Sheet, Instructor Guide, and Slide/Tape Presentation (29 slides/1 cassette tape) in Carousel Tray.

Cost: Missouri $18 each - additional Student Manuals are $ .15
Out-of-State $20 each - additional Student Manuals are $ .20

16 AND 27 MAKING CORRECTIONS ON TYPEWRITTEN COPY

Description: Techniques for correcting errors on typewritten copy by using the following methods: erasing, correction tape, liquid correction products, correction film, and correcting typewriter.

Presentation 16: Erasing and Correcting Errors
Presentation 27: Correction Products other than Erasers

Materials Included: Student Manual, Handout Sheets, Checkpoint Sheet, Instructor Guide, and Slide/Tape Presentation (61 slides/2 cassette tapes) in Carousel Tray.

Cost: Missouri — $30 - additional Student Manuals are $ .10
Separate Presentations are $20 each
Out-of-State — $34 - additional Student Manuals are $ .12
Separate Presentations are $23 each

500 - 505 IBM EXECUTIVE TYPEWRITER MINI COURSE

Description: A complete instructional package which includes: proportional spacing, margin setting, tab setting, error correcting, centering, expand and shadow printing, line drawing, figure typing, tabulating, justifying, manuscript typing, and changing the film ribbon.

Materials Included: Student Manual, Programmed Student Learning Packet, Checkpoint Sheet, Instructor Key and Guide, Six Slide/Tape Presentations (116 slides/6 cassette tapes) and a Carousel Tray.

Cost: Missouri — $75 - additional Student Manuals are $ .40
Out-of-State — $80 - additional Student Manuals are $ .50

510 - 512 SPIRIT OR LIQUID DUPLICATION

Description: Preparing masters for liquid or spirit duplication, preparing the A.B. Dick liquid duplicator for operation, and operating the liquid duplicator.

Materials Included: Student Manual, Handout Sheets, Checkpoint Sheet, Instructor Key and Guide, and Three Slide/Tape Presentations (77 slides/3 cassette tapes) in Carousel Tray.

Cost: Missouri — $40 - additional Student Manuals are $ .25
Presentation 510 ONLY - $17
Out of State — $45 - additional Student Manuals are $ .30
Presentation 510 ONLY - $19

710 PROFESSIONALISM AND ETHICS IN BUSINESS

Description: Presentation of proper attitudes for the professional in business and an introduction to the concept of continuing education after employment and the value of association with professional organizations. Also includes a discussion of the traits required for ethical behavior--trustworthiness, dependability, loyalty, and others.

Materials Included: Student Manual, Checkpoint Sheet, Instructor Guide and Key, and Slide/Tape Presentation (102 slides/1 cassette tape) in Carousel Tray.

Cost: Missouri — $30 - additional Student Manuals are $ .35
Out-of-State — $34 - additional Student Manuals are $ .40

720 - 724 THE METRIC SYSTEM

Description: Prepared to teach students the metric system--not conversion. Includes a visual presentation and application problems.

Materials Included: Student Manual, Application Problems, Checkpoint Sheet, Instructor Guide and Key, and Slide/Tape Presentation (127 slides/5 cassette tapes) in Carousel Tray.

Cost: Missouri — $40 - additional Student Manuals are $ .25
Out-of-State — $45 - additional Student Manuals are $ .30

Presentation includes 20 copies of Student Manual. For larger class sizes additional manuals will need to be ordered.

BUSINESS AND OFFICE MODULES AVAILABLE NOW
From The MEDIA CENTER
State Fair Community College

1000 STUDENT ORIENTATION TO INDIVIDUALIZED INSTRUCTION– BUSINESS AND OFFICE

Description: Presentation of the philosophy of individualized instruction, the advantages to the student, and tips about pitfalls to avoid. Also includes an explanation of feelings the student may encounter in a transition from traditional to individualized instructional methods.

Materials Included: Instructor Guide and Slide/Tape Presentation (44 slides/ 1 cassette tape) in Carousel Tray.

Cost: Missouri $30
Out-of-State $34

14 INTRODUCTION TO THE IBM MODEL D TYPEWRITER

Description: Explanation of operation of all machine parts of the IBM Model D typewriter.

Materials Included: Student Manual, Checkpoint Sheet, Instructor Guide and Slide/Tape Presentation (25 slides/1 cassette tape) in Carousel Tray.

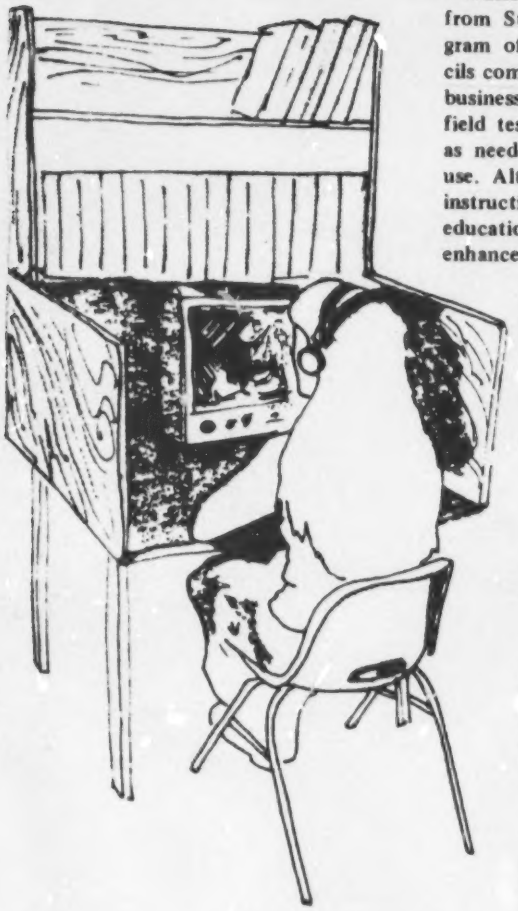
Cost: Missouri $16 - additional Student Manuals are $ .10
Out-of-State $18 - additional Student Manuals are $ .12

15 INTRODUCTION TO THE IBM SELECTRIC TYPEWRITER

Description: Explanation of operation of all machine parts of the IBM Selectric typewriter.

Materials Included: Student Manual, Checkpoint Sheet, Instructor Guide, and Slide/Tape Presentation (25 slides/1 cassette tape) in Carousel Tray.

Cost: Missouri $16 - additional Student Manuals are $ .10
Out-of-State $18 - additional Student Manuals are $ .12



The following materials were developed by instructors and media specialists at State Fair Community College and Area Vocational/Technical School utilizing input from State Department of Education program officers and statewide advisory councils composed of professional educators and business representatives. They have been field tested in Missouri institutions, revised as needed, and are now available for your use. Although developed for individualized instruction, they work equally well in all educational settings. These materials can enhance your educational program.

Each presentation is an independent complete unit. A Student Manual and Instructor Guide are included. Presentations are mediated as needed.

THE STUDENT MANUAL INCLUDES:

Lesson Plan with
Objectives
Procedures
Technical Information
Student Activities

THE INSTRUCTOR'S GUIDE INCLUDES:

Lesson Plan
Suggested References
Listing of Supplies Needed
Activity Key
Test and Test Key

THE MEDIATION PROVIDES:

Cassette Tapes 35 MM Slides
Carousel Tray Included

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INDIVIDUALIZED MEDIATED INSTRUCTIONAL MATERIALS

BUSINESS and OFFICE Occupations

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AG76-503 THE SOIL PROFILE

Description: Explains the soil profile. Describes typical soil horizons and their characteristics.

Materials Included: Student Manual, Instructor Packet, and Slide/Tape Presentation (51 slides) in Carousel Tray.

Cost: Missouri $17.25 - additional Student Manuals are $ .30
Out-of-State $19.60 - additional Student Manuals are $ .35

AG76-504 COMPOSITION OF SOIL

Description: Describes the composition of an average mineral soil. Discusses the air-water relationship and properties organic matter adds to the soil.

Materials Included: Student Manual, Instructor Packet, and Slide/Tape Presentation (55 slides) in Carousel Tray.

Cost: Missouri $18.00 - additional Student Manuals are $ .30
Out-of-State $20.50 - additional Student Manuals are $ .35

AG76-505 SOIL PARENT MATERIAL

Description: Explains the origin and formation of parent material. Discusses the mechanical and chemical weathering of parent material.

Materials Included: Student Manual, Instructor Packet.

Cost: Missouri $ .85 - additional Student Manuals are $ .40
Out-of-State $1.00 - additional Student Manuals are $ .45

AG76-506 SOIL FORMATION

Description: Discusses the four stages of soil formation. Describes the influence of the five soil forming factors on soil development.

Materials Included: Student Manual, Instructor Packet.

Cost: Missouri $ .90 - additional Student Manuals are $ .40
Out-of-State $1.00 - additional Student Manuals are $ .45

AG76-507 THE SOIL SEPARATES AND TEXTURE

Description: Illustrates the use of the textural triangle. Describes the textural groups. Explains the relationship of soil texture to soil fertility, aeration, drainage, and water holding capacity.

Materials Included: Student Manual, Instructor Packet, and Slide/Tape Presentation (90 slides) in Carousel Tray. Lab Experiment.

Cost: Missouri $24.50 - additional Student Manuals are $ .70
Out-of-State $28.00 - additional Student Manuals are $ .80

AG76-508 SOIL DENSITY AND STRUCTURE

Description: Describes soil structures, its relationship to pore space, and organic matter; and their relationship to farming practices. Discusses types of soil aggregates and their formation and destruction.

Materials Included: Student Manual, Instructor Packet, and Slide/Tape Presentation (75 slides) in Carousel Tray. Lab Experiment.

Cost: Missouri $22.00 - additional Student Manuals are $ .70
Out-of-State $25.00 - additional Student Manuals are $ .80

AG76-509 PHYSICAL PROPERTIES RELATED TO TEXTURE AND STRUCTURE

Description: Describes soil plasticity, shrinkage and swell, consistence, and flocculation and dispersion and how these relate to farming practices.

Materials Included: Student Manual, Instructor Packet. Lab Experiment.

Cost: Missouri $1.00 - additional Student Manuals are $ .45
Out-of-State $1.25 - additional Student Manuals are $ .50

AG76-510 SOIL COLOR

Description: Explains the origin and causes of different soil colors. Describes the relationship of soil color to other soil properties.

Materials Included: Student Manual, Instructor Packet, and Slide/Tape Presentation (51 slides) in Carousel Tray. Lab Experiment.

Cost: Missouri $17.50 - additional Student Manuals are $ .40
Out-of-State $20.00 - additional Student Manuals are $ .45

AGRI-BUSINESS MODULES AVAILABLE JULY 1, 1977 FROM THE MEDIA CENTER, STATE FAIR COMMUNITY COLLEGE

INTRODUCTION TO SOILS

AG76-1000 ORIENTATION TO INDIVIDUALIZED INSTRUCTION

Description:		A presentation on the philosophy and use of individualized instruction, the advantages to the student and tips about pit falls to avoid.
Materials Included:		Student Manual, Instructor Packet, and Slide/Tape Presentation (55 slides) in Carousel Tray.
Cost:	Missouri	$18.00 - additional Student Manuals are $ .30
	Out-of-State	$20.30 - additional Student Manuals are $ .35

AG76-501 LAND RESOURCES AND FOOD SUPPLIES

Description:		Discusses the increasing world population in relationship to agriculture and the soil. Describes the use of land in the United States and the world.
Materials Included:		Student Manual and Instructor Packet.
Cost:	Missouri	$ .70 - additional Student Manuals are $ .30
	Out-of-State	$ .80 – additional Student Manuals are $ .35

AG76-502 CONCEPTS OF SOILS

Description:		Discusses the different uses of soil. Analyzes the view points of soil possessed by different individuals. Describes discoveries of early soil scientists.
Materials Included:		Student Manual, Instructor Packet, and Slide/Tape Presentation (70 slides) in Carousel Tray.
Cost:	Missouri	$21.00 - additional Student Manuals are $ .40
	Out-of-State	$23.75 - additional Student Manuals are $ .45

The following materials were developed by instructors and media specialists at State Fair Community College and Area Vocational/Technical School utilizing input from State Department of Education program officers and statewide advisory councils composed of business and industry representatives. They have been field tested in Missouri institutions, revised as needed, and are now available for your use. Although developed for individualized instruction, they work equally well in all educational settings. We are happy to be of service to you and feel these materials will enhance your educational program.

Each presentation is an independent complete unit. Included are a Student Manual and Instructor's Packet. Presentations are mediated as needed.

THE STUDENT MANUAL INCLUDES:

Lesson Objectives
Study Procedures
Technical Information
Student Activities

THE INSTRUCTOR'S PACKET INCLUDES:

Lesson Plan
Suggested References
Listing of Supplies Needed
Activity Key
Test and Test Key

THE MEDIATION PROVIDES:

Cassette Tapes 35 MM Slides
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AGRICULTURE - SOILS

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HO76-200-05 OPERATION OF AUXILLIARY EQUIPMENT

Description: A demonstration of the basic principles of operation of standard auxilliary equipment. Includes overbed table, light, call light, side rails, and IV poles. Adaptable to various types of electric bed with stress on patient safety and comfort.

Materials Included: Student Manual, Instructor Packet, Script, Slide/Tape Presentation (70 slides/1 cassette tape).

Cost: Missouri $19.00 - additional Student Manuals are $ .40
Out-of-State $21.00 - additional Student Manuals are $ .50

HO76-200-06 THE PATIENT'S CHART

Description: Describes the purposes for maintaining a patient's chart and the components of a chart. Legal and ethical implications are stressed in keeping with the concept of confidentiality.

Materials Included: Student Manual, Instructor Packet, Chart, Cassette Tape.

Cost: Missouri $18.00 - additional Student Manuals are $ .35
Out-of-State $20.00 - additional Student Manuals are $ .40

HO76-200-07 HANDWASHING

Description: Medical asepsis is defined, examples are given, and times when handwashing is necessary are stressed. The key to maintaining the strong link in asepsis and the principles involved in handwashing are outlined.

Materials Included: Student Manual, Instructor Packet, Cassette Tape.

Cost: Missouri $2.00 - additional Student Manuals are $ .20
Out-of-State $2.50 - additional Student Manuals are $ .25

HO76-200-08 HANDWASHING DEMONSTRATION

Description: A video tape demonstration on the proper technique of handwashing with emphasis on the basic principles of asepsis.

Materials Included: Student Manual, Instructor Packet, Video Tape.

Cost: Missouri $34.00 - additional Student Manuals are $ .10
Out-of-State $38.50 - additional Student Manuals are $ .15

HO76-200-09 ORAL HYGIENE

Description: The basic principles of good oral hygiene for the individual as well as for the hospitalized patient are presented. Includes information for self-care as well as stuperous and unconscious patients. Demonstration lessons follow in other packets.

Materials Included: Student Manual, Instructor Packet, Cassette Tape.

Cost: Missouri $2.00 - additional Student Manuals are $ .25
Out-of-State $2.50 - additional Student Manuals are $ .30

HO76-200-10 ASSISTING THE PATIENT WITH ORAL HYGIENE

Description: A step by step demonstration is presented on how to assist the patient with oral hygiene utilizing the principles presented in 200-09.

Materials Included: Student Manual, Instructor Packet, Slide/Tape Presentation (20 slides/2 cassette tapes).

Cost: Missouri $13.00 - additional Student Manuals are $ .20
Out-of-State $15.00 - additional Student Manuals are $ .25

LABORATORY PROCEDURES

HO76-300-01 ORIENTATION TO THE CLINICAL LABORATORY

Description: An introduction to the clinical laboratory that describes its basic functions, including: what it is, how it evolved, its various departments, qualifications for laboratory personnel.

Materials Included: Student Manual, Instructor Packet, Slide/Tape Presentation (45 slides/1 cassette tape).

Cost: Missouri $27.00 - additional Student Manuals are $ .30
Out-of-State $30.00 - additional Student Manuals are $ .35

HO76-300-02 ROUTINE LABORATORY SCREENING TESTS

Description: Routine multiscreening test for hematology, chemistry and urinalysis are identified and defined. Normal values and their significance are given for each. Proper handling of laboratory specimens and completed laboratory reports are discussed.

Materials Included: Student Manual, Instructor Packet, Script, Slide/Tape Presentation (45 slides/1 cassette tape).

Cost: Missouri $24.00 - additional Student Manuals are $ .75
Out-of-State $27.00 - additional Student Manuals are $ .95

HO76-300-03 SPECIAL LABORATORY TESTS

Description: Special laboratory tests such as the glucose tolerance test, bacteriology, blood gasses and blood bank techniques are presented. Factors that affect test results adversely are listed and variations of clinical values for infants and children are presented.

Materials Included: Student Manual, Instructor Packet, Cassette Tape.

Cost: Missouri $2.50 - additional Student Manuals are $ .60
Out-of-State $3.00 - additional Student Manuals are $ .75

400 INTERPERSONAL PSYCHOLOGY

HO76-401 YOUR TOTAL IMAGE

Description: Explains the importance of good grooming, verbal communication, and kinesics as well as describing principles of good physical, emotional, and mental health.

Materials Included: Student Manual, Instructor Packet, Slide/Tape Presentation (114 slides/2 cassette tapes)

Cost: Missouri $29.50 - additional Student Manuals are $ .60
Out-of-State $34.00 - additional Student Manuals are $ .75

HO76-402 INTRODUCTION TO TRANSACTIONAL ANALYSIS - PART I

Description: Explains the theory of transactional analysis including the three ego states, the Parent, Adult, and Child. It also explains the three types of transactions. The importance of understanding behavior to increase self-awareness and positive communication is emphasized.

Materials Included: Student Manual, Instructor Packet, Slide/Tape Presentation (70 slides/2 cassette tapes).

Cost: Missouri $22.00 - additional Student Manuals are $ .55
Out-of-State $25.00 - additional Student Manuals are $ .70

HO76-403 INTRODUCTION TO TRANSACTIONAL ANALYSIS - PART II

Description: Explains the transactional theories of strokes and psychological stamp collections. It directs the student to identify how to utilize this knowledge in their daily life.

Materials Included: Student Manual, Instructor Packet, Cassette Tape.

Cost: Missouri $2.50 - additional Student Manuals are $ .50
Out-of-State $3.00 - additional Student Manuals are $ .60

HO76-404 FACTORS INFLUENCING BEHAVIOR - PART I

Description: Explains the effects of basic needs, heredity, and environment on human behavior. Incorporates Maslow's hierarchy of needs.

Materials Included: Student Manual, Instructor Packet, Slide/Tape Presentation (45 slides/2 cassette tapes).

Cost: Missouri $17.50 - additional Student Manuals are $ .30
Out-of-State $22.00 - additional Student Manuals are $ .40

200 FUNDAMENTALS OF NURSING

HO76-200-01 THE THREE PRINCIPLES GUIDING NURSING ACTION

Description: Shows the relationship of the three broad principles; maintaining man's individuality, maintaining the physiological functions, protection of man against external causes of illness and injury; to the concept of total patient care. Also explains the interrelatedness of all principles in planning, implementing, and evaluating the total concept of patient care.

Materials Included: Student Manual, Instructor Packet, Cassette Tape.

Cost: Missouri $2.50 - additional Student Manuals are $ .35
Out-of-State $3.00 - additional Student Manuals are $ .40

HO76-200-02 EXTERNAL FACTORS INFLUENCING THE PATIENT'S ENVIRONMENT

Description: An overview of the total environmental factors, patient characteristics which influence safety, and the safety hazards in the environment. These are integrated into the concept of total patient care with appropriate adoption.

Materials Included: Student Manual, Instructor Packet, Script, Slide/Tape Presentation (110 slides/2 cassette tapes).

Cost: Missouri $26.00 - additional Student Manuals are $ .35
Out-of-State $29.00 - additional Student Manuals are $ .40

HO76-200-03 THE PATIENT'S UNIT

Description: Describes the patient's unit including the bed, overbed table bedside stand, light, chair and call light. The arrangement, proper usage and adoption of the furniture is presented in relation to the three principles guiding nursing action.

Materials Included: Student Manual, Instructor Packet, Script, Slide/Tape Presentation (80 slides/2 cassette tapes).

Cost: Missouri $21.00 - additional Student Manuals are $ .20
Out-of-State $23.50 - additional Student Manuals are $ .25

HO76-200-04 OPERATION OF THE STANDARD ELECTRIC BED

Description: The basic principles of operation of a standard electric bed are demonstrated. These are adaptable to various types of electric beds with stress on patient safety and comfort.

Materials Included: Student Manual, Instructor Packet, Script, Slide/Tape Presentation (50 slides/1 cassette tape).

Cost: Missouri $16.00 - additional Student Manuals are $ .30
Out-of-State $18.00 - additional Student Manuals are $ .40

HO76-100-04 LISTENING IN COMMUNICATIONS

Description: Describes the importance of careful listening, and how to improve your listening ability. This module also includes examples of implied meanings in communication.

Materials Included: Student Manual, Instructor Packet, Cassette Tape.

Cost: Missouri $2.50 - additional Student Manuals are $ .30
Out-of-State $3.00 - additional Student Manuals are $ .40

HO76-100-05 SPEAKING IN COMMUNICATIONS

Description: Explains the importance of tone and modulation, the art of conversation, how to avoid rumors and gossip, and when to use medical and technical language.

Materials Included: Student Manual, Instructor Packet, Script, and Slide/Tape Presentation (54 slides/2 cassette tapes).

Cost: Missouri $19.00 - additional Student Manuals are $ .30
Out-of-State $21.50 - additional Student Manuals are $ .40

HO76-100-06 READING IN COMMUNICATIONS

Description: The importance of reading and ways to improve reading ability are analyzed. Includes a programmed learning section on medical terminology.

Materials Included: Student Manual, Instructor Packet, Cassette Tape.

Cost: Missouri $4.00 - additional Student Manuals are $1.50
Out-of-State $4.50 - additional Student Manuals are $1.90

HO76-100-07 WRITING IN COMMUNICATIONS

Description: Explains the importance of writing and how to improve writing ability. It includes examples of correct memos, minutes, reports, and letters.

Materials Included: Student Manual, Instructor Packet, Script, and Slide/Tape Presentation (67 slides/2 cassette tapes).

Cost: Missouri $24.00 - additional Student Manuals are $ .25
Out-of-State $27.00 - additional Student Manuals are $ .30

HO76-100-08 COMMUNICATION IN YOUR JOB

Description: Explains vertical and horizontal communication and how it may be hindered or stimulated. Also included are institutional organization and the etiquette of communication.

Materials Included: Student Manual, Instructor Packet, Cassette Tape.

Cost: Missouri $18.00 - additional Student Manuals are $ .40
Out-of-State $20.50 - additional Student Manuals are $ .50

HO76-405 FACTORS INFLUENCING BEHAVIOR - PART II PATTERNS OF ADJUSTMENT

Description: Describes various patterns of adjustment (defense mechanisms) and gives specific examples of each. Relates these patterns of adjustment to the health field.

Materials Included: Student Manual, Instructor Packet, Slide/Tape Presentation (71 slides/2 cassette tapes).

Cost: Missouri $22.00 - additional Student Manuals are $ .55
Out-of-State $27.25 - additional Student Manuals are $ .70

HO76-406 LEARNING HOW TO LEARN

Description: A comprehensive explanation of methods and principles to use to study better and learn more in less time. The lesson includes improving concentration, planning a study schedule, classroom skills and etiquette, guidelines for writing examinations, and also explains a specific method of studying.

Materials Included: Student Manual, Instructor Packet, Slide/Tape Presentation (65 slides/2 cassette tapes).

Cost: Missouri $21.50 - additional Student Manuals are $ .60
Out-of-State $24.50 - additional Student Manuals are $ .75

HO76-407 THE HEALTH CARE TEAM

Description: Introduces the student to the facets of the health care world including types of health care facilities and the functions of each hospital department. It also explains guidelines for appropriate behavior with patients, physicians, health care team members, and those in authority.

Materials Included: Student Manual, Instructor Packet, Cassette Tape.

Cost: Missouri $3.00 - additional Student Manuals are $ .60
Out-of-State $3.50 - additional Student Manuals are $ .75

HO76-408 - PATIENT RELATIONSHIPS

Description: Discusses the basic components of relationships and applies them to the relationship between a health care worker and a patient.

Materials Included: Student Manual, Instructor Packet, Cassette Tape.

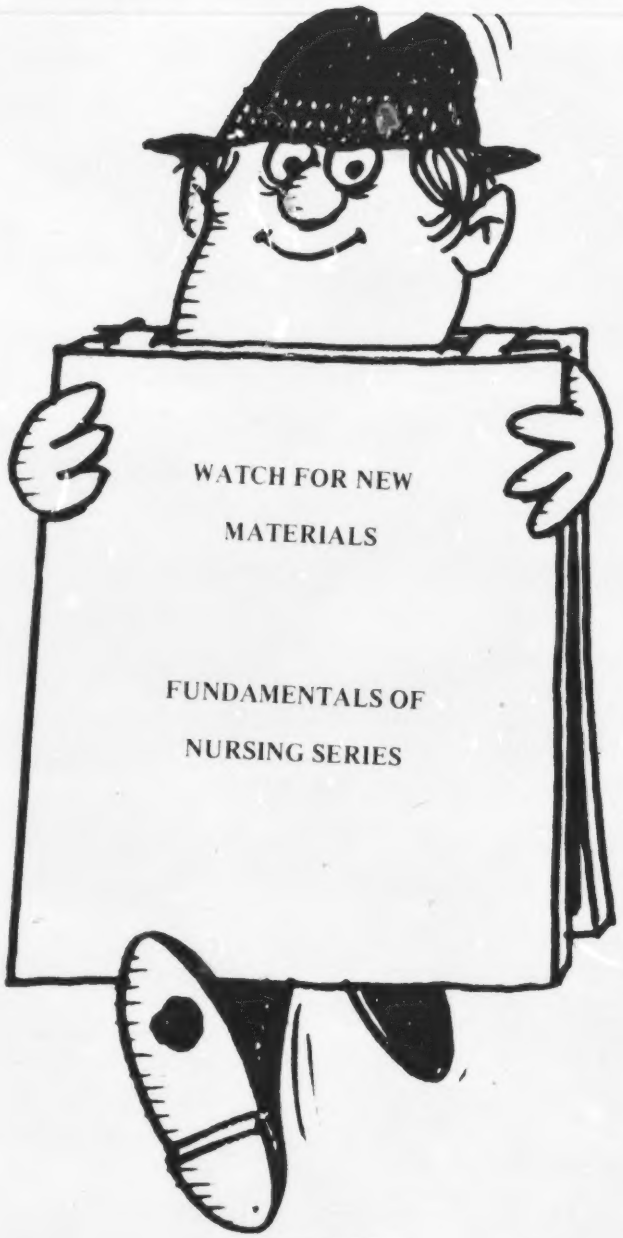
Cost: Missouri $2.75 - additional Student Manuals are $ .55
Out-of-State $3.00 - additional Student Manuals are $ .70

HO76-409 ETHICAL AND LEGAL CONSIDERATIONS

Description: Explains the ethical and legal responsibilities of health care workers. Discusses the importance of professional organizations. Introduces the concept of Patient Bill of Rights.

Materials Included: Student Manual, Instructor Packet, Cassette Tape.

Cost: Missouri $2.75 - additional Student Manuals are $ .50
Out-of-State $3.00 - additional Student Manuals are $ .70



HEALTH OCCUPATION MODULES AVAILABLE JULY 1, 1977 FROM THE MEDIA CENTER, STATE FAIR COMMUNITY COLLEGE

100 COMMUNICATIONS

HO76-1000 INTRODUCTION TO INDIVIDUALIZED INSTRUCTION

Description: A discussion of individualized instruction explaining advantages to the instructor and students, how it differs from traditional instruction, and how materials are to be used.

Materials Included: Student Manual, Instructor Packet, Script, and Slide/Tape Presentation (52 slides/2 cassette tapes).

Cost: Missouri $19.00 - additional Student Manuals are $ .30
Out-of-State $21.25 - additional Student Manuals are $ .35

HO76-100-01 THEORY OF COMMUNICATIONS

Description: An introduction to communications describing the various theories and examining some barriers to effective communications.

Materials Included: Student Manual, Instructor Packet, Script, and Slide/Tape Presentation (44 slides/2 cassette tapes).

Cost: Missouri $17.00 - additional Student Manuals are $ .20
Out-of-State $19 50 - additional Student Manuals are $ .25

HO76-100-02 THINKING IN COMMUNICATION

Description: Explains the relationship of thinking to the processes of communication, detailing why logical thinking is important and how it can be achieved.

Materials Included: Student Manual, Instructor Packet, Script, and Slide/Tape Presentation (53 slides/2 cassette tapes).

Cost: Missouri $19.00 - additional Student Manuals are $ .30
Out-of-State $22.00 - additional Student Manuals are $ .35

HO76-100-03 PERCEPTION IN COMMUNICATIONS

Description: Explains the important relationship between perception and action in the communication process, as well as the use of our senses and why they are important.

Materials Included: Student Manual, Instructor Packet, Cassette Tape.

Cost: Missouri $2.50 - additional Student Manuals are $ .30
Out-of-State $3.00 - additional Student Manuals are $ .40

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Lesson Objectives
Study Procedures
Technical Information
Student Activities

THE INSTRUCTOR'S PACKET INCLUDES:

Lesson Plan Including Outline
Suggested References
Listing of Supplies Needed
Activity Key
Test and Test Key

THE MEDIATION PROVIDES:

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W77-103 FUEL GAS WELDING SAFETY

Description: Safety practices required for fuel gas welding, cutting, and brazing. Important topics of this module include the care, handling, and operation of cylinders and gasses, regulators, hoses, and torches.

Materials Included: Student Manual, Instructor Packet, Slide/Tape Presentation (52 slides/1 cassette tape) in Carousel Tray.

Cost: Missouri $17.50 - additional Student Manuals are $ .35
Out-of-State $20.00 - additional Student Manuals are $ .45

W77-104 SHIELDED METAL ARC WELDING PRINCIPLES

Description: Operating principles used to produce welding current with the AC transformer, transformer rectifier and motor driver generator welder. Topics covered include transformer and generator action, polarity setting, the flux coated electrode fusion process, and standards for rating welding machines.

Materials Included: Student Manual, Instructor Packet, Slide/Tape Presentation (48 slides/1 cassette tape) in Carousel Tray.

Cost: Missouri $17.00 - additional Student Manuals are $ .45
Out-of-State $19.00 - additional Student Manuals are $ .55

W77-105 SETTING UP AND OPERATING THE METAL ARC WELDING MACHINE

Description: This unit is designed to instruct the student to set up a metal arc welder for operation, learn to strike arcs, and run continuous beads with a 1/8 inch, E6013 electrode in the flat position. Appropriate student exercises are included.

Materials Included: Student Manual, Instructor Packet, Slide/Tape Presentation (48 slides/1 cassette tape) in Carousel Tray.

Cost: Missouri $17.00 - additional Student Manuals are $ .30
Out-of-State $19.00 - additional Student Manuals are $ .40

W77-106 BASIC JOINTS USED IN WELDING

Description: Covers the five basic joints used in welding fabrication, listing the strengths and weaknesses of each type of joint. Other topics include root spacing, and the edge preparation used to insure sufficient penetration for joint construction with various thicknesses of metal.

Materials Included: Student Manual, Instructor Packet, Slide/Tape Presentation (46 slides/1 cassette tape) in Carousel Tray.

Cost: Missouri $16.50 - additional Student Manuals are $ .35
Out-of-State $19.00 - additional Student Manuals are $ .45

The following materials are scheduled for release January 1, 1978
They will include an Instructor Packet, Student Manual, and Slide/Tape Presentation. Costs will be comparable to those listed for previous modules

W77-107 SHIELDED METAL ARC ELECTRODES

Description: Outlines the basic types of flux coated electrodes used in welding shops. Information covering flux coating electrode types, classification, care and storage, and recommended uses are included.

W77-108 BASIC WEAVE PATTERNS AND PADDING

Description: Describes common weave procedures and patterns used in shielded metal arc welding. An explanation of how these patterns are used in industry is included. An exercise is provided to give students experience in using weave patterns and padding.

W77-109 SQUARE GROOVE BUTT AND LAP JOINT SHIELDED METAL ARC WELDING

Description: Designed to teach students the fundamental methods of fabricating square groove butt, and lap joints on metal sheet. Special information is covered on welding techniques, joint uses and heat expansion. Exercises are included to give students practical experience.

W77-110 WELDING HEAVY PLATE

Description: Shows correct procedures for welding basic joints from heavy plate using multi-pass welding in the flat position. Edge preparation for single and double bevel, single and double vee, and single and double u is shown. Exercises for student experience are provided.

W77-111 SINGLE AND MULTIPLE PASS FILLET WELDS

Description: Shows correct procedures for welding single and multiple pass fillet welds in the flat position on sheet and plate metal using the shileded metal arc process. Special emphasis placed on correct edge preparation and controlling metal distortion. Exercises for student experience are included.

W77-112 HORIZONTAL POSITION SHIELDED METAL ARC WELDING

Description: Shows correct procedures for welding basic joints in the horizontal position using single and multi-pass methods on sheet and plate. Emphasis on weave patterns and edge preparation are stressed.

WATCH FOR NEW MATERIALS
WELDING PRINTS, SPECIFICATIONS AND SYMBOLS
BASIC PIPE WELDING
OPERATING FLAME CUTTING EQUIPMENT
WELDING BASIC JOINTS WITH THE "MIG" WELDING UNIT

WELDING MODULES AVAILABLE JULY 1, 1977 FROM THE MEDIA CENTER, STATE FAIR COMMUNITY COLLEGE

WELDING

W77-1000 INTRODUCTION TO INDIVIDUALIZED INSTRUCTION

Description: A presentation on the philosophy and use of individualized instruction, the advantages to the student and tips about pit falls to avoid.

Materials Included: Student Manual, Instructor Packet, and Slide/Tape Presentation (55 slides) in Carousel Tray.

Cost: Missouri $18.00 - additional Student Manuals are $ .30
Out-of-State $20.30 - additional Student Manuals are $ .35

W76-101 GENERAL WELDING SHOP SAFETY

Description: Operating procedures and safety practices used while operating machines that shear, form, drill, and position metals to be welded.

Materials Included: Student Manual, Instructor Packet, and Slide/Tape Presentation (39 slides/1 cassette tape) in Carousel Tray.

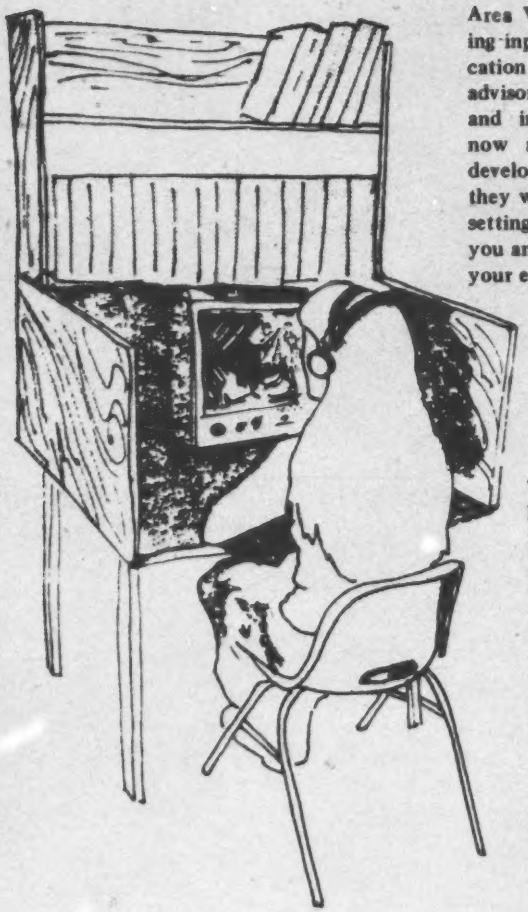
Cost: Missouri $15.00 - additional Student Manuals are $ .40
Out-of-State $17.00 - additional Student Manuals are $ .50

W76-102 SHIELDED METAL ARC WELDING SAFETY

Description: Safety practices required for the safe and efficient operation of metal arc welding machines. Topics covered include the handling of hot metal and protection from splatter metal, toxic fumes, electrical shock, and harmful rays produced while welding.

Materials Included: Student Manual, Instructor Packet, and Slide/Tape Presentation (62 slides/1 cassette tape) in Carousel Tray.

Cost: Missouri $19.00 - additional Student Manuals are $ .30
Out-of-State $21.50 - additional Student Manuals are $ .40



The following materials were developed by welding instructors and media specialists at State Fair Community College and Area Vocational/Technical School utilizing input from State Department of Education program officers and statewide advisory councils composed of business and industry representatives. They are now available for your use. Although developed for individualized instruction they work equally well in all educational settings. We are happy to be of service to you and feel these mataerials will enhance your educational program.

Each presentation is an independent complete unit. Included are a Student Manual and Instructor's Packet. Presentations are mediated as needed.

THE STUDENT MANUAL INCLUDES:

Lesson Objectives
Study Procedures
Technical Information
Student Activities

THE INSTRUCTOR'S PACKET INCLUDES:

Lesson Plan
Suggested References
Listing of Supplies Needed
Activity Key
Test and Test Key

THE MEDIATION PROVIDES:

Cassette Tapes 35 MM Slides
Carousel Tray Included

Visitors are welcome to preview materials at the Media Center at any time. Since our prices cover only reproduction costs, we do not have a profit margin to allow for shipment of materials for preview. Prices to Missouri schools are lower than out of state prices because past material development costs were supported by the Missouri Department of Elementary and Secondary Education.

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